

# THE IRON AGE

Published every Thursday Morning by David Williams Co., 14-16 Park Place, New York.

Vol. 80: No. 11.

New York, Thursday September 12, 1907

\$3.00 a Year, including Postage  
Single Copies, 15 Cents.

Reading Matter Contents .....page 737  
Alphabetical Index to Advertisers " 193  
Classified List of Advertisers " 183  
Advertising and Subscription Rates " 192

## Reed F. Blair & Co.

Frick Building, Pittsburg, Pa.

**COKE, PIG IRON**

**CHROME ORE**

**FERRO MANGANESE**

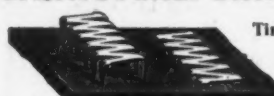
**SILICON SPIEGEL, ETC.**

The American Mfg. Co.

Ropes and Twines

65 Wall Street, New York

## Bristol's Patent Steel Belt Lacing



**SAVES**  
Time, Belts, Money.  
Greatest Strength  
with Least Metal  
Send for Circular Q and Free Samples

**THE BRISTOL CO., Waterbury, Conn.**  
New York: 114 Liberty Street  
Chicago: 753 Monadnock Building

## SAMSON SPOT CORD



Also Massachusetts and Phoenix Brands

**SAMSON CORDAGE WORKS, Boston, Mass.**

## TURNBUCKLES



Cleveland City Forge and Iron Co., - Cleveland, O.

**TURNBUCKLES.**



**MERRILL BROS.,**

465 to 471 Kent Ave.,  
Brooklyn, E. D., N. Y.

## Mill Cinder

**Pilling & Crane**

Girard Building, Phila.  
Machesney Bld., Pitts'g  
Empire Bld., New York

There may be some substitute for

## HIGH QUALITY

—but so far it has not been discovered.

See

AMERICAN  
SHEET & TIN PLATE  
COMPANY'S

Ad. on Page 16.



**U.M.C.**



## SHOT SHELLS

Arrow and Nitro Club brands will be carried by the thousands to the game fields this fall. Their popularity and the partiality of shooters for them is not accidental. True merit in manufacture, from primer to crimp, has won such a confidence in the U. M. C. trade-mark that it means A PREFERENCE.

*U. M. C. Shells give satisfaction.  
Carry a good stock.*

**The Union Metallic Cartridge Co.**  
Bridgeport, Conn.

Agency, 313 Broadway, New York City.

## WATER TUBE BOILERS

**The Babcock & Wilcox Co.**  
85 Liberty Street  
New York

See page 53

*There is More Profit for the Merchant in Carrying*

## "Capewell" Horse Nails

Than others because there is such a large demand for this brand. Considerably **more than half of** all the horseshoe nails sold in the United States are "Capewell." **It pays a dealer,** therefore, always to carry these nails in stock.

**THEY SELL THE BEST**

Made by

**The Capewell Horse Nail Co.,** Hartford, Conn.



## JENKINS '96 SHEET PACKING

The Original Unvulcanized Packing. Suitable for all steam joints. Not only does it make a tight joint quickly, but it makes a joint that *will last*. Made in sheets, and also, to order, in GASKETS cut to any size or shape. All genuine is stamped with Trade Mark as shown in the cut, and is guaranteed.

JENKINS BROS., New York, Boston, Philadelphia, Chicago, London

## "Swedoh" Cold Rolled Steel

THE AMERICAN TUBE & STAMPING COMPANY  
Water and Rail Delivery) BRIDGEPORT, CONN.

SEE PAGE 22



## MAGNOLIA ANTI FRICTION METAL

The Standard Babbitt of the World

We manufacture everything in the Babbitt Line.

**MAGNOLIA METAL CO.**

New York: 115 Bank St. Chicago: Fisher Building. Montreal: 31 St. Nicholas St.

## PROMPT SHIPMENTS

We are now in a position to make

## QUICK DELIVERIES of BLACK SHEETS

in  
ONE PASS  
GOLD ROLLED  
and special qualities  
and finishes.

**FOLLANSBEE  
BROTHERS  
COMPANY**  
PITTSBURGH

## BRASS

SHEET  
ROD  
WIRE  
SHEET  
ROD  
WIRE

## COPPER

## GERMAN SILVER

SHEET  
ROD  
WIRE

LOW BRASS, SHEET BRONZE,  
SEAMLESS BRASS AND COPPER  
TUBING, BRAZED BRASS AND  
BRONZE TUBING : : : : :

## WATERBURY BRASS CO.,

WATERBURY, CONN.

99 John St., New York. Providence, R. I.

## Bridgeport Deoxidized Bronze & Metal Co.

BRIDGEPORT, CONN.

Phosphor and Deoxidized  
Bronze

Composition, Yellow Brass and Alumi-  
num Castings, large and small

## The Plume & Atwood Mfg. Co.

Manufacturers of

## Sheet and Roll Brass and WIRE

Printers' Brass, Jewelers' Metal,  
German Silver and Gilding Metal,  
Copper Rivets and Burrs

Pins, Brass Butt Hinges, Jack Chain, Kerosene  
Burners, Lamps, Lamp Trimmings, &c.

279 Broadway, NEW YORK  
Room 508 Heyworth Building, East Medi-  
son St., CHICAGO, ILL.

Rolling Mill  
THOMASTON, CONN. Factories  
WATERBURY, CONN.

## SCOVILL MFG. CO.

MANUFACTURERS OF

BRASS, GERMAN SILVER,

Sheets, Rolls, Wire Rods,  
Bolts and Tubes,

Brass Shells, Cups, Hinges, Buttons,  
Lamp Goods.

Special Brass Goods to Order.

FACTORIES:

WATERBURY, CONN.

DEPOTS:

NEW YORK CHICAGO BOSTON

## Henry Souther Engineering Co.

HARTFORD, CONN.

Consulting Chemists, Metallur-  
gists and Analysts.

Complete Physical Testing Laboratory.  
Expert Testimony in Court and Patent Cases.

## Arthur T. Rutter & Co.

256 Broadway  
NEW YORK

Small tubing in Brass, Copper,  
Steel, Aluminum, German Silver,  
&c. Sheet Brass, Copper and  
German Silver. Copper, Brass  
and German Silver Wire. Brazed  
and Seamless Brass and Copper  
Tube. Copper and Brass Rod.

## "PHONO-ELECTRIC"

WIRE. "IT'S TOUGH."

TROLLEY,  
TELEPHONE  
and  
TELEGRAPH  
LINES.



Mills  
Bridgeport  
Conn.

BRIDGEPORT BRASS COMPANY,  
Postal Telegraph Bldg.  
Broadway and Murray St., New York.



PHOSPHOR-BRONZE  
GERMAN SILVER

THE RIVERSIDE  
METAL CO.  
RIVERSIDE, N. J.

## Matthiessen & Hegeler Zinc Co.,

LA SALLE, ILLINOIS.

## SMELTERS OF SPELTER

AND MANUFACTURERS

## SHEET ZINC AND SULPHURIC ACID.

Special Sizes of Zinc cut to order. Rolled Battery Plates.  
Selected Plates for Etchers' and Lithographers' use.  
Selected Sheets for Paper and Card Makers' use.  
Stove and Washboard Blanks.

ZINCS FOR LECLANCHE BATTERY.

## BRASS FOUNDERS FINISHERS J.J. RYAN & CO.

105-109 So. Jefferson St., Chicago.

Best Bronze, Babbitt Metals, Brass and Aluminum CASTINGS  
On Short Notice

## GERMAN SILVER | NICKEL ANODES

Brass, Bronze, and Copper

THE SEYMOUR MFG. CO. - SEYMOUR, CONN.

## HENDRICKS BROTHERS

PROPRIETORS OF THE

## Belleville Copper Rolling Mills,

MANUFACTURERS OF

Braziers' Bolt and Sheathing

## COPPER

COPPER WIRE AND RIVETS,

Importers and Dealers in

Ingot Copper, Block Tin, Spelter, Lead, Antimony, etc  
49 CLIFF ST., NEW YORK.







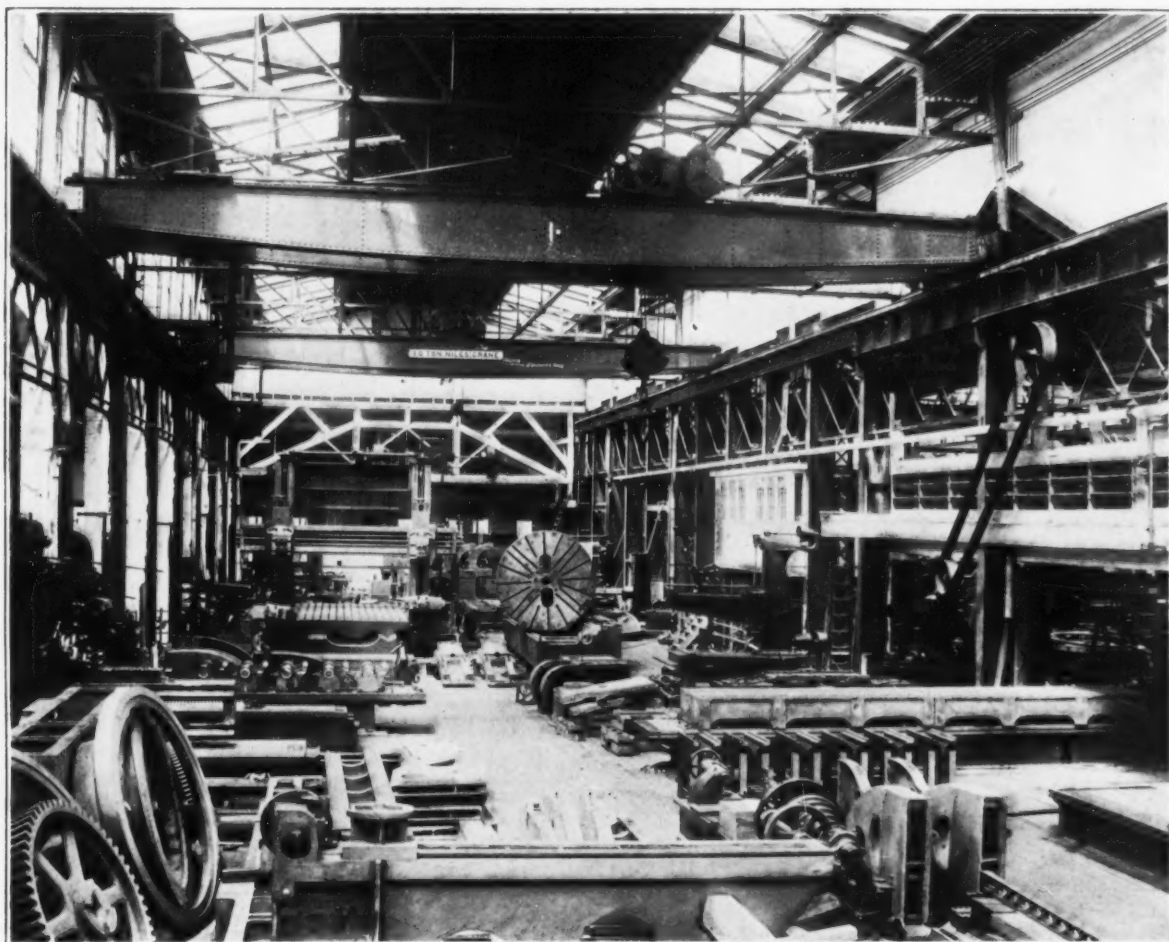
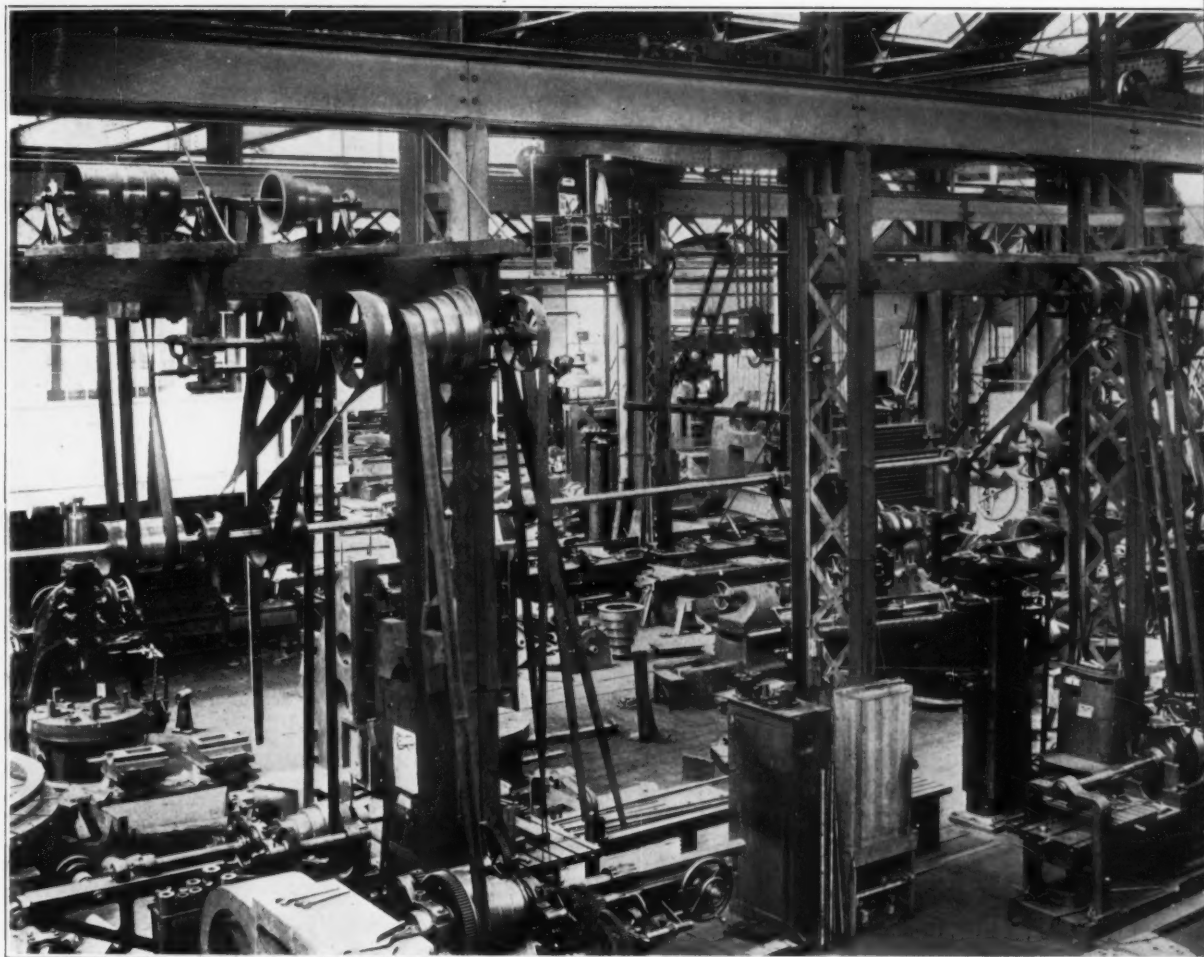
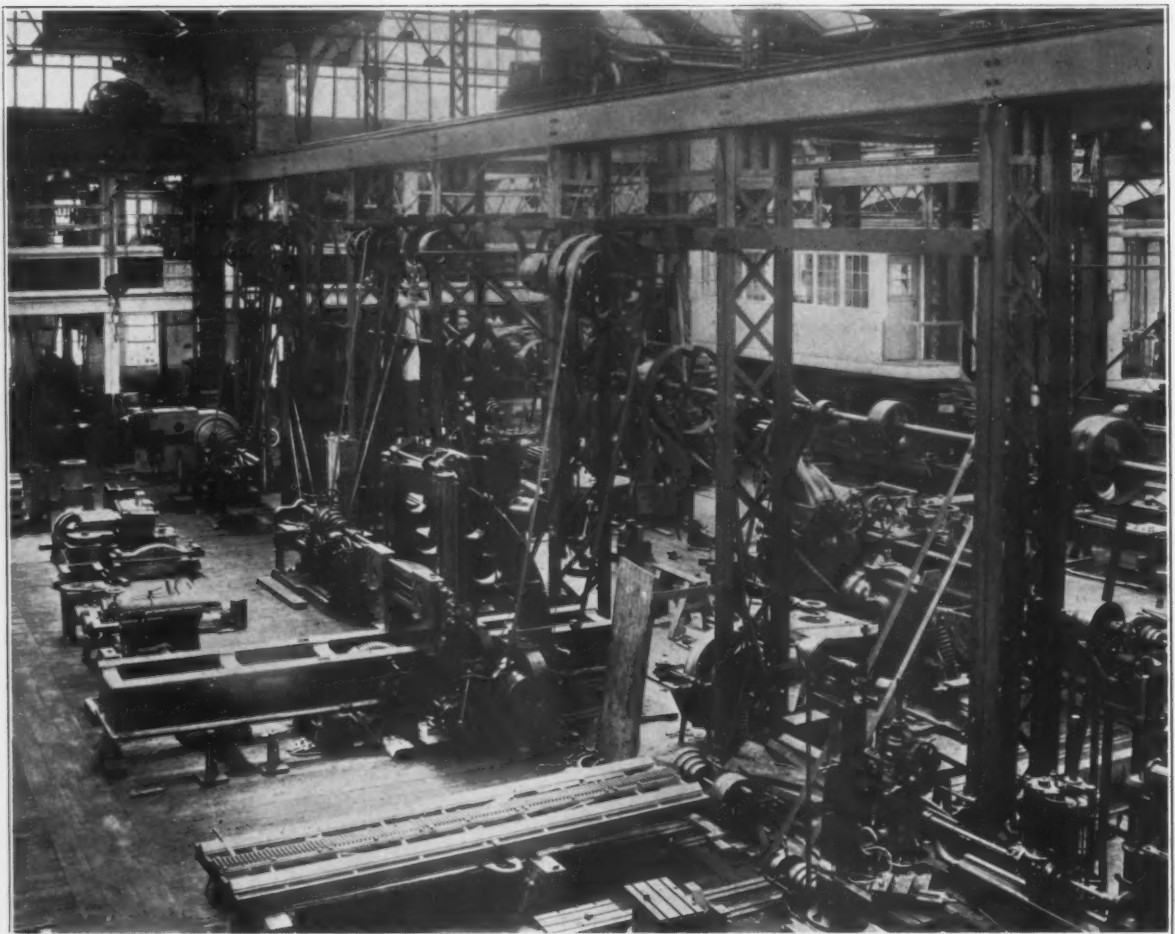
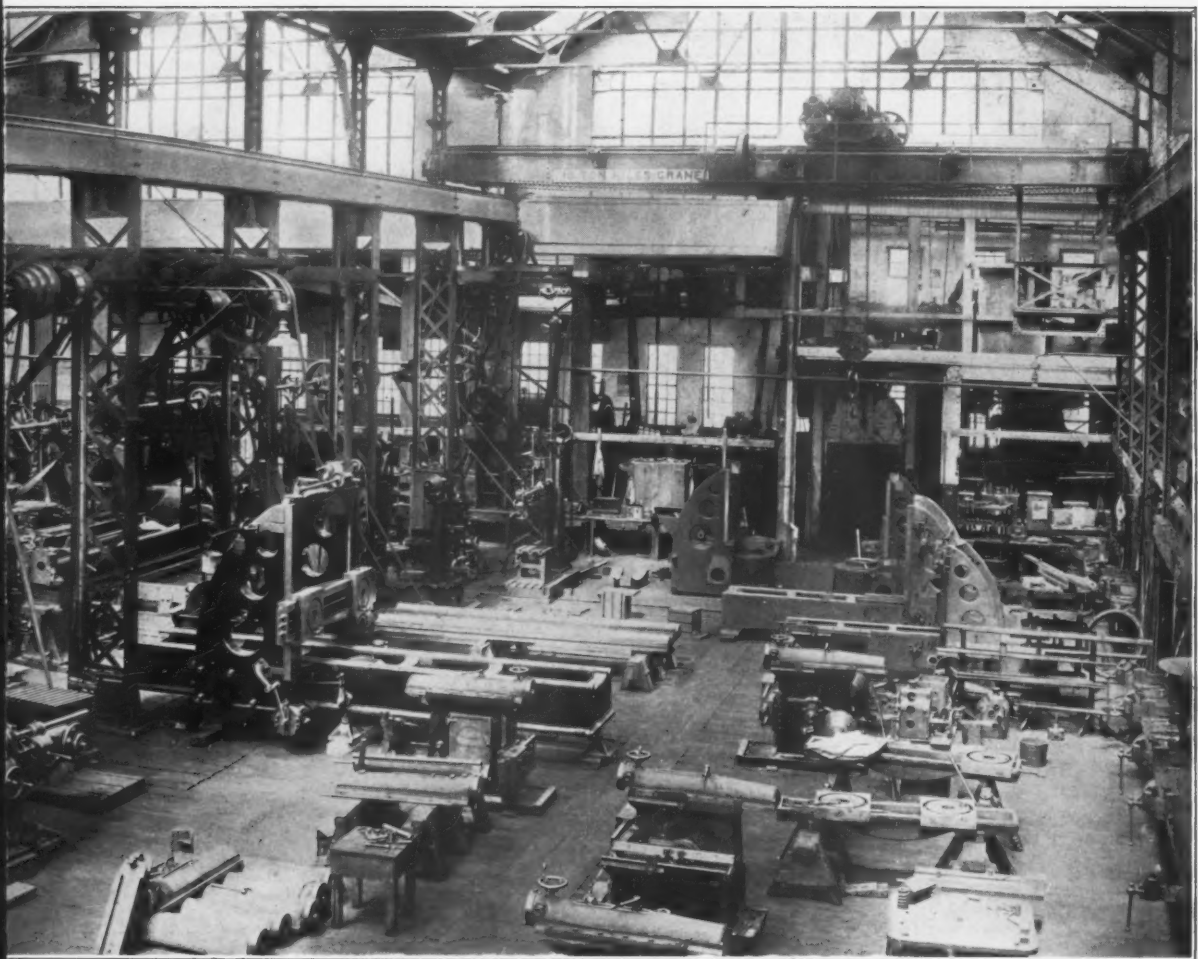


Fig. 4. View from Northeast Gallery, Shop.  
Fig. 5. View from East End of Main Erecting Shop.

MACHINE SHOP OF JOHN B.





showing Erecting Shops Nos. 1, 2 and 3.

Fig. 6. View in Planer Section from Northwest Corner of the Gallery.

RTRAM & SONS COMPANY







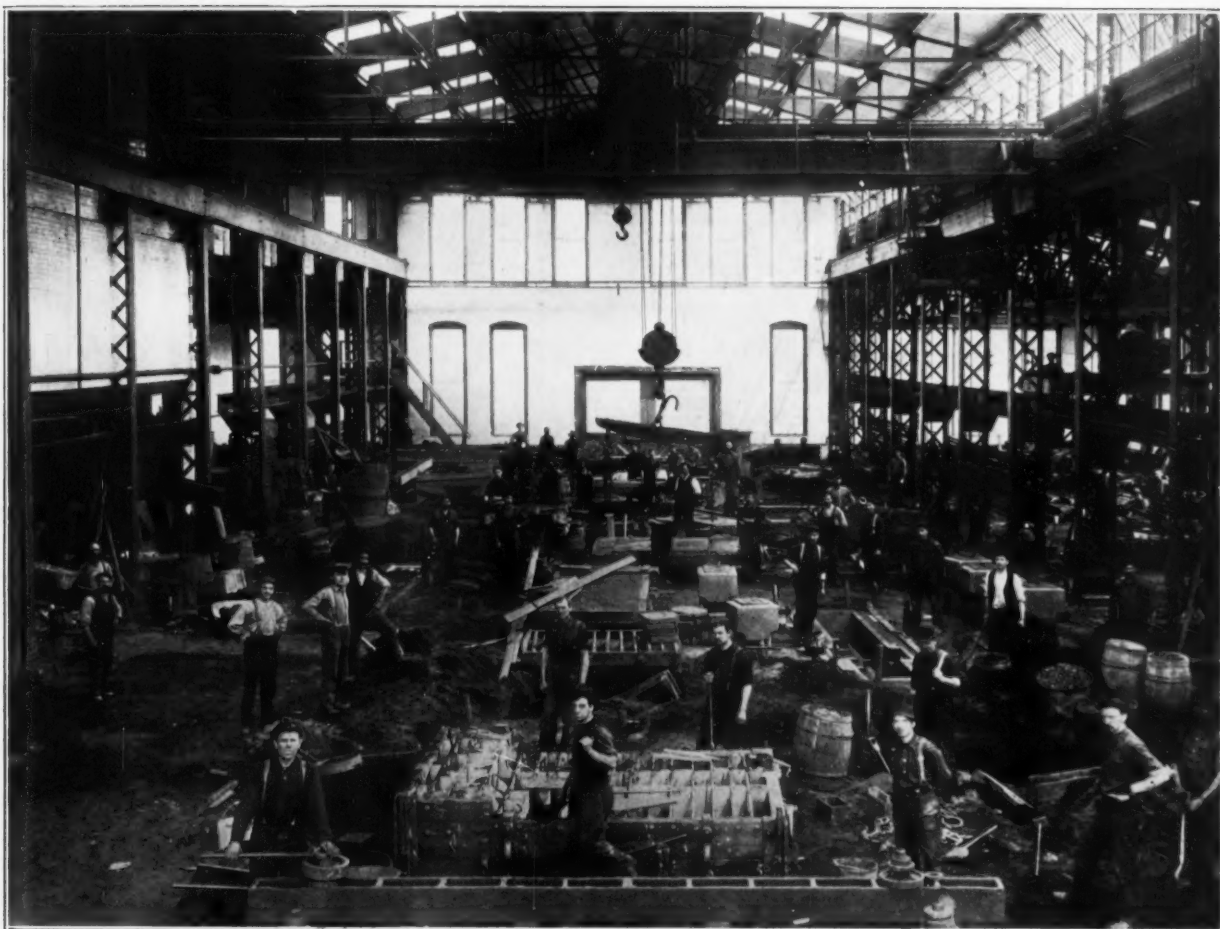


Fig. 7. View in Main Bay of the Foundry, Looking North.  
 Fig. 8. View in East Bay of the Foundry, Looking North.

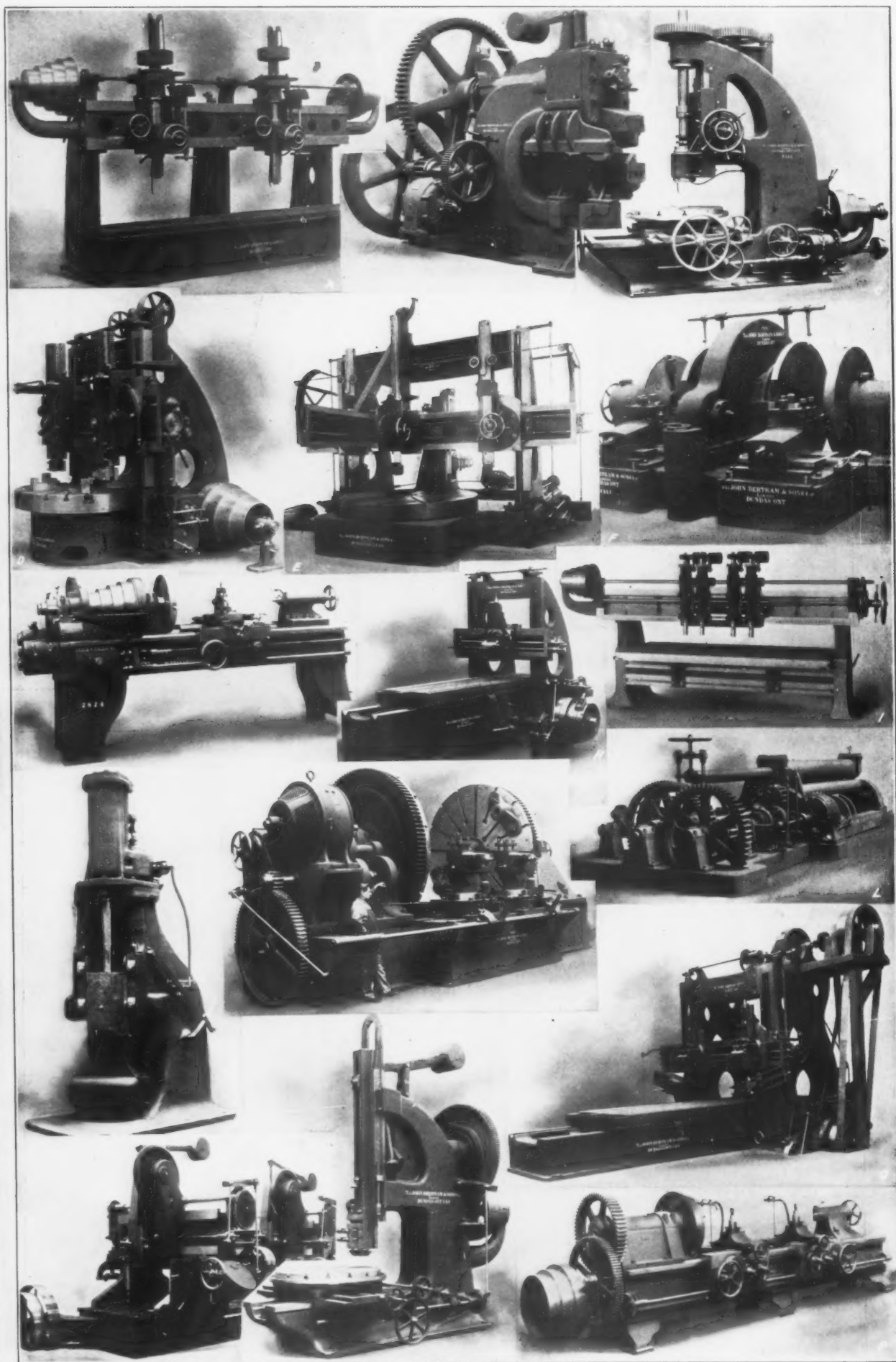


Fig. 9. Typical Products.—A, Locomotive Rod Borer; B, Coping Machine; C, Vertical Miller; D, Tire Mill; E, Extension Boring and Turning Mill; F, Car Wheel Lathe; G, Engine Lathe; H, Planer; I, Multiple Drill; J, Steam Hammer; K, Driving Wheel Lathe; L, Plate Bender; M, Locomotive Frame Slotter; N, Slotter; O, Four-Head Planer; P, Axle Lathe.

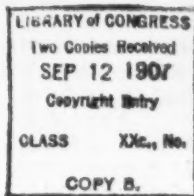






# THE IRON AGE

New York, Thursday, September 12, 1907.



## THE CANADA TOOL WORKS.

The Enlarged Plant of the John Bertram & Sons Company at Dundas, Ontario.

BY H. R. COBLEIGH

When in the summer of 1905, the John Bertram & Sons Company became the Canadian auxiliary of the Niles-Bement-Pond Company, the contracting parties were not the only ones that reaped a benefit. What is most important, it made available to Canadian purchasers of machine tools the experience of the oldest and largest machine tool builders in the United States, without compelling them to pay the duty imposed on imported tools, or diverting their money from giving employment to Canadian labor. While the combination removed the

ducts of the Pratt & Whitney Company, (the Canadian market for which is supplied by the Pratt & Whitney Company of Canada also located at Dundas), and has the use of the drawings of the allied plants. An illustration accompanying this article showing examples of product, gives a striking idea of the scope of the output, but even this is inadequate as it shows merely a few of the larger tools built. Smaller manufacturing tools, such as lathes, shapers, milling machines, &c., form an important part in the work done. The locomotive and car

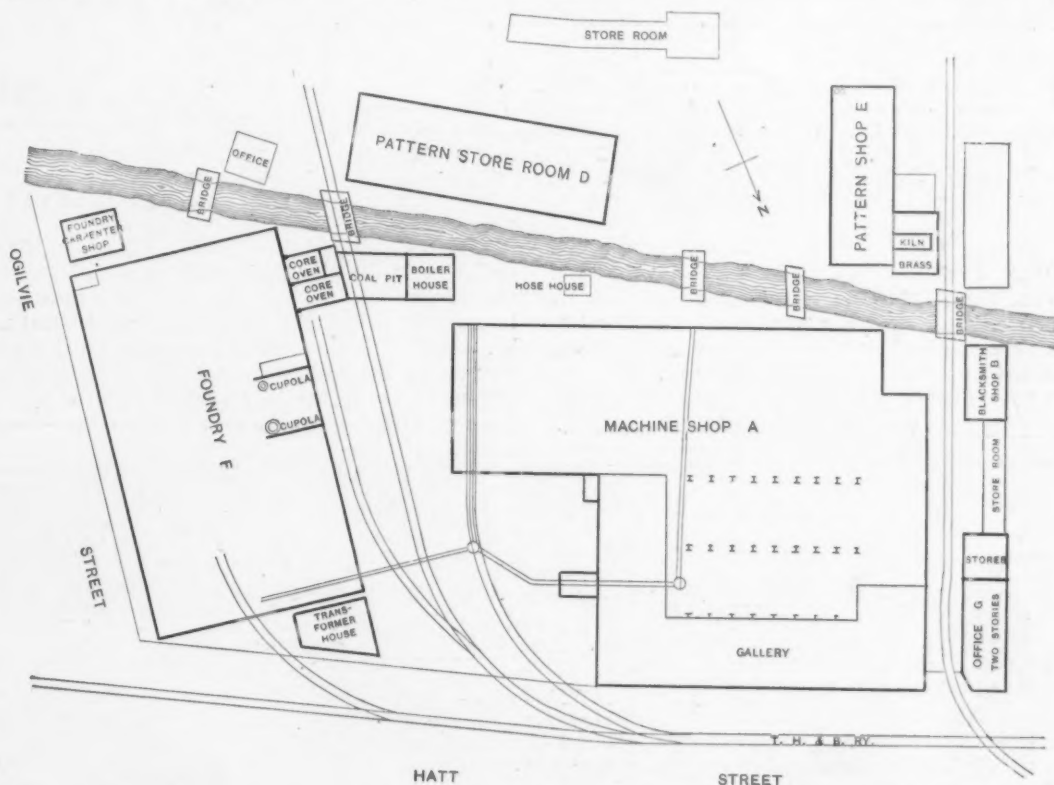


Fig. 1.—General Layout of the Canada Tool Works—John Bertram & Sons Company, Ltd., Dundas, Ontario.

competition that existed before, that too has its advantages to the consumer.

The company still retains its individual name and continues under the direction of Henry Bertram, Alexander Bertram, James Bertram and John H. Bertram, the sons of John Bertram, the founder of the company, who died April 4, 1906.

The plant is favorably located at Dundas, Ontario, a short ride by trolley from Hamilton, which in turn is only two hours distant by train from Buffalo, so that excellent facilities are at hand for shipping. As indicated in Fig. 1, which shows the general layout, five railroad switches connect with the Toronto, Hamilton & Buffalo Railway. The site comprises some 15 acres on which are a half dozen buildings with numerous extensions, store houses, &c. The plant is easily the most notable engaged in building machine tools in the Dominion, and in one particular at least is more remarkable than any in the United States, namely in the variety and range of sizes of its products. In addition to its original lines, it undertakes the building of almost any of the tools made by the other shops of the Niles-Bement-Pond Company, with the exception of the more special pro-

shop tools are, however, the most notable on account of their power and size.

### History of the Plant's Growth.

The Canada Tool Works, by which name it is still known, was established in 1865 in a small frame building 24 x 40 ft., which burned a few years later and was immediately replaced by a rough building 60 x 40 ft. Continuing from this a brick structure two stories high was built in 1868, then this was extended in the front. Later a molding shop was built in the rear, and finally the fourth side of the rectangle was closed by another two-story extension, leaving in the center an area 80 x 100 ft. The firm name at this time was McKechnie & Bertram and continued as such until 1886 when the partnership was dissolved. From then until the present it has been known as John Bertram & Sons. In 1899 the latter firm erected a steel structure, converting the hollow area enclosed by the original buildings into an erecting shop and equipped it with a 20-ton traveling crane and railroad track communicating with all the other buildings. This structure is one story with a clear height of 28 ft. overhead, and is roofed with heavy glass and corrugated iron. A significant index of the growth of

the works, particularly in later years, is the increasing number of employees; at present it is 425, six years ago it was 150 and a decade back 125.

#### The Foundry.

As a consequence of the combination two years ago and the larger fields it was proposed to enter, there was

but this alone would be of little advantage were it not for the way in which it is disposed, this being peculiarly favorable to economy of time and labor. One of the most interesting features is the means provided for holding down large floor molds. The latter consists of a system of grillage embedded  $7\frac{1}{2}$  ft. below the floor surface and

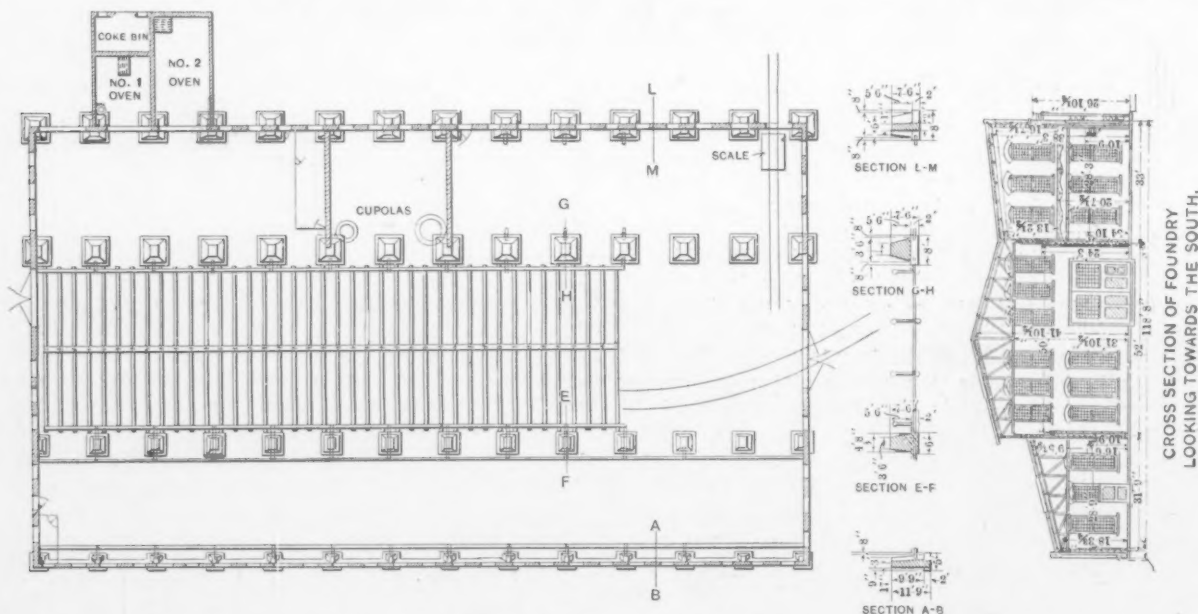


Fig. 2.—The Foundry.—Plan, Cross Section and Details. Shows the Grillage Imbedded in the Floor for Anchoring Large Molds.

immediate need of increased facilities, and extensions were planned for the machine and erecting shops and an entirely new and larger foundry was begun. The foundry, shown in plan in Fig. 2, is 210 ft. long by 100 ft. wide, and is divided into a main bay 52 ft. wide and two side bays each  $28\frac{1}{2}$  ft. wide. The east bay is one story, 10 ft. 9 in. under the crane, and the west bay is two stories,

indicated in the plan. The manner of holding the cross members of this grillage to the three longitudinal lines is illustrated in Fig. 11. The outside longitudinal members are anchored to the concrete piers supporting the columns that divide the bays, and from the cross members there extend nearly to the floor surface 160 eye bars in four rows of 40 each. In the eyes at the tops of these bars

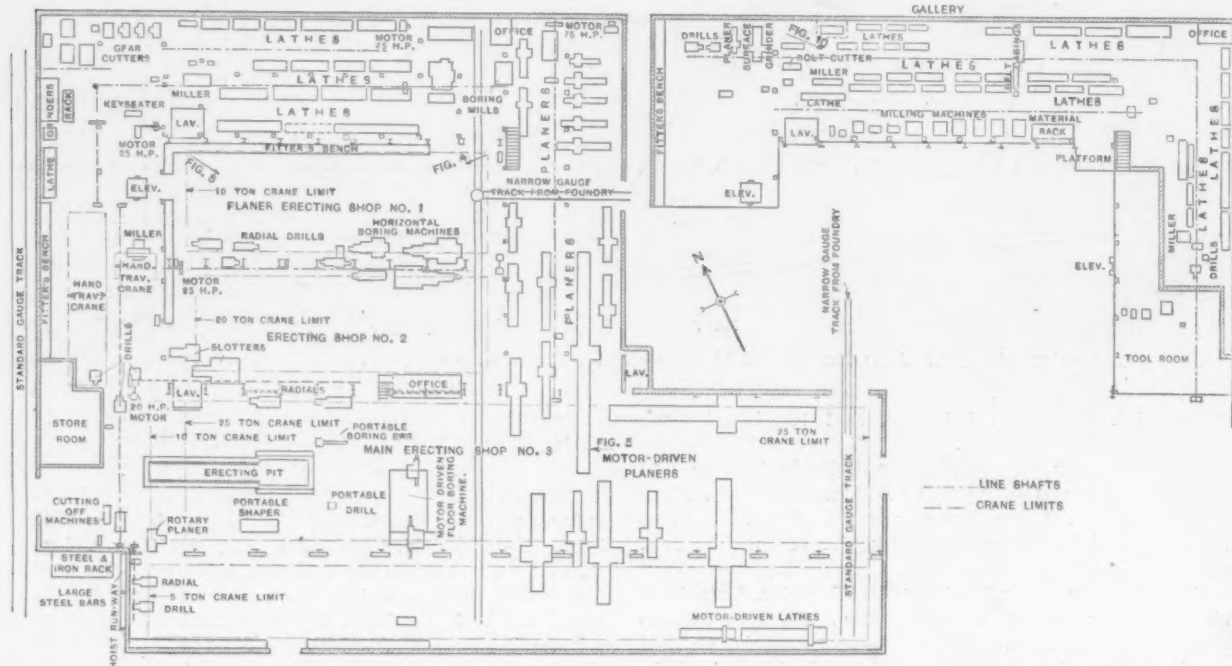


Fig. 3.—Plan of the Machine and Erecting Shops, and Gallery Showing the Location of Tools.

containing a gallery with a reinforced concrete floor  $20\frac{1}{2}$  ft. above the main floor, that serves as the charging floor for the cupolas and storage for coke, sand, &c. The foundations are concrete, the side walls brick and the frame steel, furnished by the Phoenix Bridge Works, Montreal. The skylight is wire glass, the door frames cast iron and the window sills reinforced cement. The only combustible material in the construction is the planking in the roof, which is covered with fireproof material.

The foundry equipment is modern in every respect.

binding hooks are inserted to hold down copes of large molds made in the floor. Where the location of the eye bars would interfere with a mold they are easily removable. The foundry floor is now about 6 ft. above its original level and has been filled in with loam that extent to give sufficient depth for large castings.

Fig. 7, on the supplemental plate herewith, is a view in the main bay, and shows one of the two cranes there installed. This is of 25 tons capacity, with a 5-ton auxiliary hoist, and the other is a 10-ton crane. There are



two 5-ton cranes in the east bay, which, as shown in Fig. 8, is devoted to smaller molding work. All of the cranes are electrically operated.

In the middle of the west wing are the cupolas, brick walled from the rest of the building. There are two, a Colliau cupola made by Byram & Sons, Detroit, Mich., 66 in. inside diameter and 14 tons per hour capacity, and a Whiting Foundry & Equipment Company's cupola, 40 in. inside diameter and 7 tons per hour capacity. Nearby are tumbling barrels. To the south is the core department, which is served by a 5-ton crane. Large cores are dried in two core ovens in an extension shown in the plan Fig. 2. A vertical section through oven No. 1 and the coke bin is given in Fig. 12. This oven is 19 ft. deep and the other 30 ft.; both are 10 ft. high by 15 ft. wide. From the coke firing room behind the shorter oven both ovens are fired, as indicated in Fig. 12. For small cores there is

outside of the building by a bucket elevator, the casing of which may be seen at the right in Fig. 13. The elevator discharges into either of two chutes, one leading to the coke bin and the other to a horizontal chain and flight conveyor. The latter carries the sand along to the sand bins, of which there are four for the various grades of sands, including molding sand, core sand and parting sand, and may be set to discharge into any one of them. These bins are over the core department, and near each is a hole in the floor through which the prepared sand may be spouted to the floor below. Near the bins are portable air operated sand sifters made by the Hamilton Facing Mill Company, Hamilton, Ont., and power mixers. The sand and coke elevating and conveying system was supplied by the Waterous Engine Works Company, Brantford, Ont.

Clay for lining cupolas and ladles and for other pur-



Fig. 10.—View in the Machine Shop Gallery from the Northeast Corner, Looking Southwest.

a portable oven patented by Eli Millett, Springfield, Mass., which is heated by natural gas and is made with sectional doors, each integral with a rack or tray in the form of a quarter segment of a circle, the center coincident with the hinge in the door. At the back of each tray is a vertical flange which closes the door opening when the tray is swung completely outside of the oven.

The gallery, a view of which is given in Fig. 13 as it appeared before the coke and sand bin partitions were erected, is one of the most interesting parts of the foundry. Adjacent to the charging doors of the cupolas is a scale on which the charges are weighed, and a No. 6 Root blower, driven by a 40-hp. Westinghouse induction motor, which supplies blast to both cupolas. A small amount of scrap and pig iron is kept on the floor preparatory to charging, but the main supply is brought up as needed from the storage yard adjoining the foundry on a platform elevator. Cars or barrows of the end dumping type are used, so that the material may be directly charged into the cupolas. This elevator is driven by a 5-hp. electric motor. The coke and sand are stored on this floor and are delivered to it from the ground level

poses is also stored on the gallery floor. For drying ladles and skin drying molds natural gas is used. There are fixtures in the ground floor at the north side of the cupola room for the former purpose, and for drying molds the gas is piped as convenience requires. Compressed air, besides operating sand shakers, as already mentioned, is also used in pneumatic rammers and chipping hammers and for blowing out molds.

Material is received in the ample storage yard between the foundry and machine shop in cars on a spur leading from the railroad tracks, as the general plan, Fig. 1, indicates. Castings are also stored in this space. A crane runway against the side of the foundry is now in position for the 60-ft. span yard crane, which is contemplated for serving the storage space. Another railroad spur leads directly into the foundry, where the crane service is available for loading castings which are to be shipped directly. The company's foundry capacity is more than sufficient for its own needs, and some work is done for outside concerns. Castings are cleaned at the north end of the foundry in the main and west bays. At the back or south end there is sufficient room for extending the

foundry, though it might necessitate diverting the creek which passes through the property. At present there is here located the foundry carpenter shop, where flasks and core boxes are made and repaired.

#### The Machine and Erecting Shops.

The foundry is a foot higher than the machine shop, so that completed castings may be easily pushed on cars down the gentle grade over the narrow gauge track to the machine shop. The general plan, Fig. 1, shows the

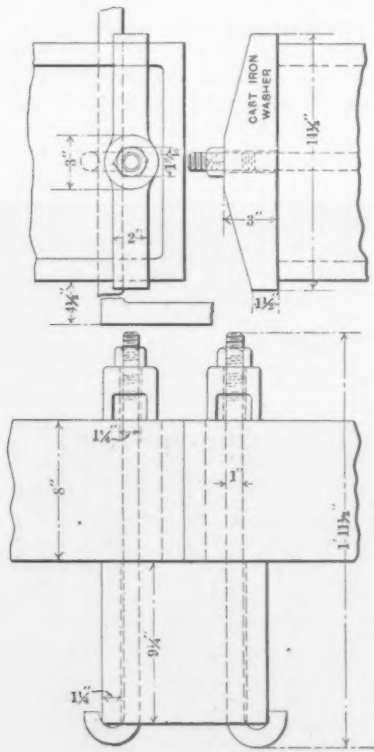


Fig. 11.—Detail of the Joining of the Members of the Grillage in the Foundry Floor.

relation of the two buildings, and the narrow gauge track system. In Fig. 3 a plan of the machine shop and its gallery, the disposition of the tools is indicated. The grouping of tools in the main follows the scheme of keeping close together those employed in the constructing of each type of product. For example, that part designated erecting shop No. 1 is commonly devoted to the assembling of planers; boring mills for the most part are made in erecting shop No. 2, and large or special machines in the main erecting shop No. 3. The arrangement of departments is as outlined before, the erecting shops being in the center and the machine shops around them.

The new erecting show (No. 13), finished about six months ago, extends about 84 ft. beyond the older buildings and is much higher, making it particularly convenient for erecting large machines. All of the new construction work is of brick and steel. The present floor space is 70,000 sq. ft., including the 12,000 sq. ft. in the gallery.

The shop is particularly well lighted and roomy. The latter is largely a consequence of the excellent arrangement of the equipment which is apparent from the diagram, Fig. 3. The best conception of the interior of the shop is to be had from the photographic views, Figs. 4, 5, 6 and 10. Fig. 4 shows best the erecting shops Nos. 1 and 2, and No. 3 may be partly seen in the left background. A better view of this shop is given in Fig. 5, which shows a large 10-ft. planer in process of construction at the time this photograph was taken. All standard size planers are erected in the section of the shops shown in Fig. 6. In general the large work is done on the ground floor, and the machining of small parts is as far as possible carried on in the gallery, a view of which is given in Fig. 10. Between these four views nearly every part of the machine shop building is shown. By examining these and referring to the plan, Fig. 3, on which

arrows indicate the direction in which the views were taken, a pretty clear understanding of the shop may be had. The bases of the arrows are approximately on the points at which the camera was placed.

As will be seen from the plan of the building most of the tools are ranged near the walls of the building. Some of the larger tools which require crane service are placed in rows beside the columns in the erecting shops, where they do not encroach on the space needed for assembling and where they can be advantageously driven from line shafts. Considering the space which was available for the tools it is rather remarkable that the shop is not overcrowded, although it contains in all about 170 separate pieces of equipment exclusive of benches, &c. In all there are some 60 lathes, including in the order of their predominance, engine, hand, turret, gap, boring, chucking and pulley lathes; 22 planers and a rotary planer, 7 gear cutting machines, 12 milling machines, and the remainder are radial and upright drills, grindstones and tool and drill grinders, shapers, horizontal boring machines and vertical boring mills, universal and surface grinders, slotters, key seating machines, bolt cutters, power hack saws, cutting-off machines, &c. The more remarkable tools in point of size are the following: The largest lathe has a 28-ft. bed and swings 72 in., the next longest is 26 ft. long and swings 28 in. (there are a number swinging 36 in. or more, which are 12 ft. long or over); the largest planer is a 72 x 94 1/2 in. x 36 ft. machine, and another of the same length has an opening between the housings, 60 x 48 in. (a number are 36 x 36 in. x 12 ft. or over, another large one being 72 x 72 in. x 20 ft.); a Pond floor boring machine, with 3-in. spindle at the east end of erecting shop No. 3, is used for miscellaneous boring and drilling on large pieces.

In this same shop several interesting portable tools are used, including a portable boring bar, a special portable shaper and a portable electric drill. In the majority of cases the tools are group driven. In the plan of the machine shop the lines of shafting are indicated and the location of the driving motors and their sizes are given. All the tools in the main erecting shop are driven by individual motors, and in other cases where the location or the power required were sufficient to warrant it, direct connected motors have been employed.

The course of work through the shops may be followed from the general plan, Fig. 1, and the shop plan, Fig. 3. The castings are brought into the shop in either of the two ways indicated by the lines of narrow gauge

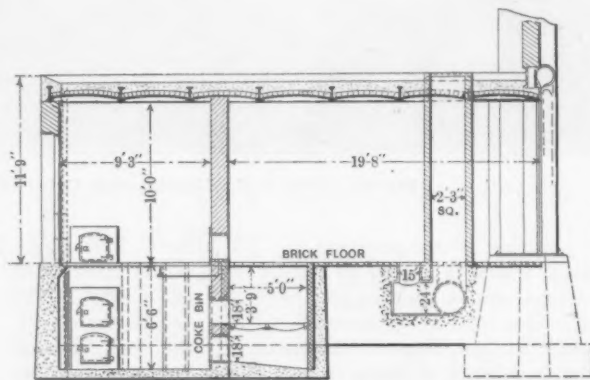


Fig. 12.—Sectional Elevation Through Oven No. 1 and the Firing Room for Both Ovens.

track, heavier parts being carried to the large machines adjoining the main erecting shop, and lighter ones to erecting shops Nos. 1 or 2, where they are distributed to the adjoining machine shops, or are passed up by an elevator to the gallery. Cranes are provided to assist in the distribution of the work. In erecting shop No. 1 there is a 10-ton crane, in No. 2 a 15-ton crane, in the main erecting shop No. 3 one 25-ton crane, with a 5-ton auxiliary hoist and one 10-ton crane, and in the bay adjoining the latter shop a 5-ton crane. All are electrically operated. Compressed air is used in this building for hoists and chipping hammers.

**Other Buildings.**

Lack of space forbids more than passing mention of the other buildings. These in the order of their size are the pattern storehouse, 50 x 148 ft., and shown in Fig. 1, containing shelves and bins for the storage of patterns, which are assorted according to size and where possible according to use; the pattern shop, 35 x 98 ft., equipped with the usual complement of woodworking tools commensurate with the foundry it serves, and having a wing containing a wood drying kiln and brass foundry; the office building two stories high, accommodating the business offices on the first floor and drafting room and blue printing and photographic departments on the second floor; the blacksmith shop, 25 x 45 ft., with forges, annealing and tempering furnaces and a 800-lb. steam hammer (operated by compressed air); the boiler house, 25 x 30 ft., containing the equipment that furnishes heat to all the buildings in winter; the transformer house of about 1000 sq. ft. area, which, since power is not generated locally, is the substitute for a power plant, and numerous storehouses.

**Power Supply.**

It has been explained that the plant is at no great distance from Buffalo, and it will be at once appreciated that another advantage of the location is avail-

Canadian Westinghouse Company. A large panel switch-board in the transformer house controls the distribution of current to different parts of the plant.

**Heating and Lighting.**

The comfort and welfare of the employees have received deserved attention in the provision of cleanly and sanitary lockers and plumbing, and in the heating and lighting equipment. Sewerage is cared for by quite an elaborate septic tank installation, and pure drinking water is supplied to all parts of the premises. The heating is by direct radiation, mostly from coils suspended on the walls or columns; an example of the latter mounting is to be seen in the view of the east bay of the foundry, Fig. 8. Two large boilers located as indicated in Fig. 1, furnish steam solely for heating, all power being supplied by electricity or compressed air, therefore they need to be operated only during the cold season. A convenient arrangement for reducing the handling of coal for these boilers has been effected by placing the firing floor below the ground level. Coal is received in cars over another spur between the foundry and machine shop, and the cars are dumped directly into a pit beside the boiler house. The latter holds a considerable supply and delivers it as needed by gravity through gates directly upon the firing floor.



Fig. 13.—Foundry Gallery, Looking South. View Taken Before the Sand and Coke Bins Were Erected.

ability of cheap power, being within the zone of electric current distribution from the various Niagara water power developments. The power used here, however, is not generated at Niagara proper, but at De Cew Falls near St. Catharines, and is purchased from the Dominion Power & Traction Company of Hamilton. Alternating current is transmitted at 60,000 volts to Hamilton, and from there to a point near Dundas at 10,000 volts, where it is transformed to 2400 volts, at which pressure it is received at the plant and finally stepped down to 220 volts. Alternating current at this pressure is used directly for lighting and in the constant speed motors, and is converted to 220-volt direct current for the variable speed motors on individually driven tools and on the cranes. All of the substation apparatus is contained in the transformer house, an entirely fire-proof structure, and includes four 250-kw. static transformers which reduce the pressure to 220 volts, a 175-kw. motor-generator which takes 220-volt alternating current and delivers 220-volt direct current, a 175-hp. induction motor driving a Canadian Rand air compressor supplying air at 100 lb. pressure for use in various parts of the plant, and a 1000-gal. triplex fire pump which, when occasion requires, may be instantly connected by a clutch to the same motor, the air compressor being disconnected. The pump supplies three 6-in. mains extending about the works for high-pressure fire protection. The motor-generator set was furnished by the Canadian General Electric Company, and the motor and transformer by the

The ventilation is cared for by natural means that have proved entirely sufficient. The location of the buildings and their surroundings are favorable as the prevailing winds create currents through the windows and mechanically operated ventilators.

Both the natural and artificial lighting are exceptional. Of the first something has already been said, and the interior views, which are from practically untouched photographs, bear witness to the ample light by daytime. The advantage of north light is had, particularly in the machine shop where it is most important, and the foundry, although this building does not have a great amount of northern exposure, is so well-lighted in the daytime that a man can see to work at the bottom of a hole 6 or 8 ft. deep. The artificial illumination for dark days, early dusk, or night work when necessary, is such as to render working practically as easy as by bright sunlight, and is afforded by Nernst lamps; no separate incandescent lights are used at individual machines, for the rigging required to make them really useful is too often a nuisance. This was the first installation of Nernst lamps on a large scale in Canada, and the experience with them has been all that was hoped for. They are disposed in units so as to light uniformly every area where light is needed.

**The Products.**

To revert in conclusion to the work executed at this plant is to close with what is most important in connection with any industrial establishment. More particular-



ly reference will be made to the impressive collection of tools presented in Fig. 9. The following are brief specifications of these machines; the prefixed letters in each case are the designating ones found on the engraving:

A. Two-Spindle Locomotive Slide Rod Boring Machine. Designed for simultaneously boring the two ends of locomotive connecting rods. Boring spindles are adjustable from 36 to 132 in. between centers and stand 18 in. in front of housings. Spindles are driven by tangent gearing, are counterweighted, and have four changes of positive geared feed by hand or power. Heads are movable on the rail by rack and pinion. Work table is secured to the housings and has tee-slots. Capacity, holes up to 10 in. in connecting rods up to 132 in. long.

B. Motor-Driven Beam and Channel, Punching and Coping Machine. Depth of throat to center of sliding head, 25 in. Punches and dies have an adjustment of  $2\frac{1}{2}$  to 24 in., center to center. Each punch is controlled by a gag. Capacity, the equivalent of punching two  $1\frac{1}{4}$ -in. holes through 1 in. in flanges in beams up to 24 in. Coping and notching attachment interchangeable with the punching tools.

C. No. 4 Vertical Milling Machine. Distance from center of spindle to inside of frame,  $32\frac{1}{2}$  in. Vertical distance from table to arch of frame, 20 in. Traverse of spindle, 21 in. Diameter of table, 42 in. Spindle has power vertical feed. Built in two sizes, Nos. 2 and 4.

D. 50-In. Tire Boring Mill. Designed for rough turning and finishing steel tires. Swings 51 in. and takes under tool-holders 33 in. Table is  $49\frac{1}{4}$  in. in diameter and has eight speed changes. Cross rail carries two saddles, made right and left for close work. Either saddle will move to center for boring. Feeds are positive, operate at any angle, and are entirely independent of each other. Mill may be built with either fixed or adjustable cross rail.

E. 12-18 Ft. Extension Boring and Turning Mill. Swings 12 ft. when housings are clear forward and 18 ft. when they are clear back. Greatest height under tools, 80 in. Extension cross rail reaches to center of table and carries a large boring bar, with power feed and rapid hand-traverse. Provided with rear tool column which may be adjusted in and out for turning diameters from 18 down to 12 ft. Tool slide has vertical power feed and quick hand adjustment. Driven by variable speed motor with auxiliary motors for moving housings and elevating cross rail. Built in sizes from 7-10 to 14-20 ft.

F. 48-In. Steel Tire Car Wheel Lathe. Designed for simultaneously turning and truing two steel-tired car wheels on their axle and will take wheels 48 in. in diameter on the tread. Heavy self-centering chucks grip axle journals and chuck jaws engage tires, preventing spring of axle. Driven by a variable speed motor; variation in cutting speed can be made instantly for hard spots in tires. Power is ample for one tool to cover each entire tread and flange in finishing.

G. 20-In. Double Back-Geared Engine Lathe. Built in sizes from 16 to 32 in.

H. 30 x 30 In. Square Drive Planer. Planes 30 in. wide, 30 in. high and any length. Movement of table is at right angles to line shaft, but machine is also built with parallel drive. Built in sizes from 24 to 96 in.

I. Four-Spindle Multiple Drilling Machine. Drills four holes simultaneously up to  $1\frac{1}{4}$  in. in diameter. Usually built 10 ft. between housings. May be equipped with two saddles each carrying four counterweighted spindles adjustable by screws to not less than  $7\frac{1}{2}$  in. centers. Spindles have 10-in. travel by hand or automatic feed, are controlled simultaneously by hand wheel or feed gear at end of cross rail, and are adjustable to different heights for unequal length drills. Saddles are adjustable along the rail by rack and pinion, and table in and out by the same means. Brackets can be attached to vertical face of table for supporting firebox rings or similar pieces, when a pit is allowed beneath.

J. 2000-Lb. Single-Frame Steam Hammer. Diameter of cylinder, 13 in. Stroke, 33 in. Width between guides, 17 in. Usual die surface,  $7 \times 16\frac{1}{2}$  in. Has adjustable V-guides for taking up wear and is arranged to operate automatically or by hand. Built in sizes from 350 to 2500 lb.

K. 100-In. Double Driving-Wheel Lathe. For turning wheels 94 in. in diameter on tread. Swings over bed 102 in. Maximum distance between face plates, 9 ft. Driven by variable speed motor. Range of speeds through motor and gearing provides cutting speeds from 12 to 30 ft. per min. on any diameter of tire within its intended working range. Face plates have openings to receive crank pins to bring wheels close to face plates. Feeds are positive driven by ratchets. Separate motor is used for adjusting the traversing right hand head. Built in sizes from 51 to 100 in.

L. No. 8 Motor-Driven Plate-Bending Rolls. Built in six sizes—for plates 10 ft. wide and  $1\frac{1}{4}$  in. thick; 12 ft. wide and 1 in. thick; 14 ft. wide and  $\frac{3}{4}$  in. thick; 16 ft. wide and  $\frac{1}{2}$  in. thick; 18 ft. wide and  $\frac{1}{2}$  in. thick, and 20 ft. wide and  $\frac{1}{2}$  in. thick. Illustration shows the last. Rolls are arranged in pyramid form. Two lower rolls are driven by motor with reversing mechanism operated by clutches. Upper roll is raised and lowered by power, extended for counterbalancing, and outer-bearing is hinged for removing plates rolled to a full circle.

M. No. 2 Three-Head Locomotive-Frame Slotting Machine. Openings in heads are 50 in. wide by 27 in. high. Cutter bars are adjustable for any position or length of stroke up to 26 in. and have quick return. Built with two or three heads which

can be placed on bed to face in either direction. A smaller size has a maximum stroke of 10 in.

N. 20-In. Slotting Machine. Maximum stroke, 21 in. Distance from tool apron to column, 43 in. Height between table and frame, 27 in. Table is 42 in. in diameter on its working surface, and has a longitudinal travel of 40 in. and a cross traverse of 32 in. Cutter bar is provided with automatic relief tool apron, having both vertical and horizontal clamping surface. Built in sizes from 8 to 24 in.

O. 72 x 72 In. Four-Head Motor-Driven Planer. Planes 73 in. wide, 73 in. high and is built to any length. Designed for planing locomotive cylinders and other work requiring great power. Table travels on one V and one flat track having large wearing surface and oil pockets with rollers for lubricating. Heads on cross rail are made right and left, bringing tools close together. Operated by two motors, one driving table and other raising and lowering cross rail and side tools. Also built without side heads or with only one. Largest size, 96 in.

P. Single Locomotive-Axle Lathe. Designed for turning axles up to 14 in. in diameter. Maximum distance between centers,  $8\frac{1}{2}$  ft. Axle is driven at one end by an equalizing driver. Machine is equipped with one right and one left-hand carriage, having power feed and rapid hand traverse. Rotary pump and tank for supplying lubricant to tools are provided.

As has been said, this group of tools can hardly be considered representative, though it is typical of the company's specialty, railroad machinery. The other standard tools built include lathes, planing machines, shaping machines, slotting machines, horizontal boring and drilling machines, vertical boring and turning mills, drilling machines, milling machines, cutting-off machines, bolt cutting and nut tapping machinery, punching and shearing machinery, plate planing machines, plate bending rolls, steam hammers, and horizontal forming and bending machines. Though the range of product is so extensive, it does not imply a lack of that excellence in any individual tool which would seem to be possible only where a shop is devoted to a limited variety of output. The assistance had from the allied company's shops is an effective offset to such an apparent disadvantage.

### Australian Trade Developments.

MELBOURNE, August 5, 1907.—The Eskbank Iron Works, at Lithgow, New South Wales, is turning out about 700 tons of pig iron per week. At a recent general meeting of shareholders it was resolved to increase the company's capital to £250,000 (\$1,250,000) by the issue of 100,000 new shares of 20 shillings (\$5) each. The quality of the iron turned out is highly spoken of, and Australians are now able to buy stoves and ranges of Australian manufacture for the first time in their lives. But the industry will need a strong measure of protection to insure profitable existence.

Railroad and tramway construction is proceeding apace in the several states. An English electrical engineer will shortly arrive in Victoria to report upon the electrification of the Melbourne suburban railroad. Electric power for various purposes is coming into rapidly increasing favor, and bids fair to supplant a good deal of manual labor in many factories. Steam locomotives are in good demand for our railroads still, and Beyer, Peacock & Co., Manchester, England, have secured a contract for 50 more locomotives for the New South Wales Railway Department. The contract price was about a quarter of a million sterling.

The United States Steel Products Export Company has secured from the Victorian Government a contract for 8485 tons of steel rails at the price of £6 17 shillings per ton ex ship's slings at Melbourne, and free of duty or landing charges. Of these, 6914 tons were 80 lb. rails and 1571 tons were 100 lb.

The first consignment of coke made at the new plant of the Bessemer Coke Company, located in Greene County, Pa., which went over the new extension of the Pennsylvania Railroad to that place, was shipped by J. K. Dimmick & Co. of Philadelphia, and was consigned to themselves at Chicago for one of their large customers in that territory. The new coke field thus opened is expected to become as large and as well known as the Lower Connellsville coke field.

### No Internal Revenue Reduction.

WASHINGTON, D. C., September 9, 1907.—The proposition to reduce the revenues by cutting down the internal revenue taxes, thus relieving a part of the pressure for tariff revision, is not gaining in favor; in fact, the Treasury officials are convinced that the suggestion was premature and was based upon a too hasty assumption that the receipts from customs sources for the current fiscal year would show a large increase over those of last year. The returns for the month of July foreshadowed a surplus for the current year even larger than that shown by the Treasury ledgers on June 30, last, but the record for August tells quite another story, and has put an end to all revenue reduction talk in Washington. *The Iron Age* recently pointed out editorially that, as to importations classified under the metal schedule at least, there was an excellent prospect of a decline in duties in the near future. The returns for August bear out this forecast in a very comprehensive manner.

While the receipts from all customs sources for the first two months of the current fiscal year show a gain of nearly \$3,500,000 over last year, the month of August is credited with only about \$700,000 of this amount. The same tendency is shown as to internal revenue. The gain for the fiscal year is approximately \$1,100,000, but only a little more than \$300,000 of this amount is credited to August. While the month of July usually shows a much larger deficit in Government revenue than August, this year there has been a complete reversal of conditions. On August 1 of the current year there was a deficit of only \$6,000,000, as compared with \$9,000,000 on the corresponding date of 1906, but on September 1 of this year the balance on the wrong side of the ledger was \$7,445,000, as compared with only \$5,353,000 on the same date a year ago. While this difference is due in a measure to increased expenditures, it is clearly apparent that if the gain in customs receipts during July had been maintained throughout August, the current deficit would have been much less than that recorded on the corresponding date of last year. At the present rate of decline, last year's surplus of \$87,000,000 will not be approached during the current twelvemonth. W. L. C.

### Switching Rates in Chicago.

The friction between the railroads in Chicago over switching rates has been settled, and switching tariffs on in and out traffic have been restored to a "reciprocal" basis, the terminal charges being absorbed in the through rates. About a year ago Northwestern and St. Paul railroads issued new switching tariffs in which they established rates of \$5 and more per car for switching cars to and from industries on their terminals, for connecting lines. This was a higher rate than roads entering the city from the East and South were willing to absorb in through rates, and shippers located on the Northwestern or the St. Paul had to pay the excess. At the same time the railroads, in new tariffs filed with the Interstate Commerce Commission, began to specify that rates quoted in such tariffs would only apply between their own depots, or between private siding industries on their own rails.

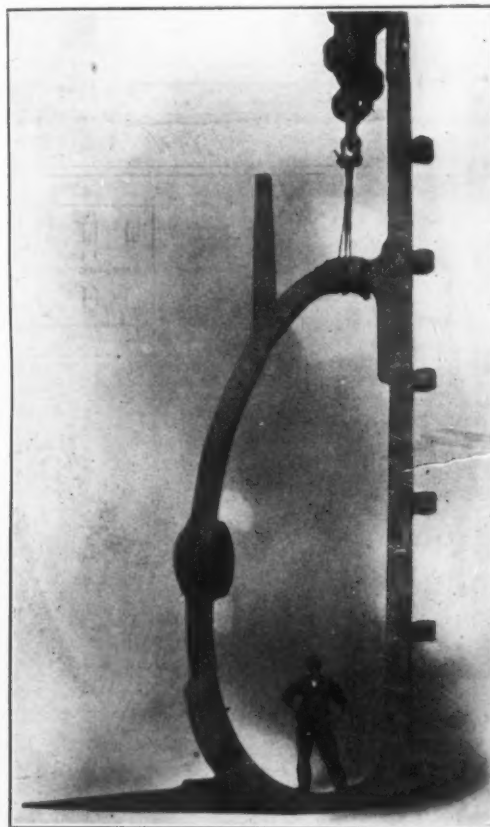
The manufacturing interests and other shippers in Chicago were considerably exercised over the matter, as it was feared that their local trouble with the Northwestern and the St. Paul might grow into a general movement on the part of the railroads of the country to throw upon the shipper the burden of all switching and terminal charges. Fortunately this fear has proved groundless. The Northwestern and St. Paul roads have recently reduced their switching rates to \$4 per car, to and from connecting lines, and other roads entering Chicago have agreed to absorb this amount. Incidentally, the other roads are raising their rates to \$4 on service for connecting lines, so as to keep their charges on a reciprocal basis. A few industries in the northwestern part of the city, formerly within reciprocal switching limits, are not covered by the new tariffs, but it is understood that special provisions have been made for them.

### Fore River Forgings.

Massive examples of complicated steel forgings are the stern frames for three steam colliers which are being built by the Fore River Shipbuilding Company, Quincy, Mass., for the New England Coal & Coke Company, Boston, to carry coal between Boston and Southern ports. One of these, for the collier Malden, which will be launched about the middle of this month, is shown in the accompanying illustration. Its dimensions are as follows:

|  |              |
|--|--------------|
| Weight .....                           | 13½ tons.    |
| Sectional width.....                   | 11 in.       |
| Sectional thickness.....               | 7 in.        |
| Length of rudder post.....             | 36 ft. 8 in. |
| Length of heel.....                    | 17 ft.       |
| Length of spur.....                    | 6 ft. 6 in.  |
| Length of propeller aperture.....      | 21 ft. 6 in. |
| Width of propeller aperture.....       | 7 ft. 5 in.  |
| Diameter of boss (inside measure)..... | 2 ft. 1½ in. |

These forgings are made from 80,000 lb. ingots of a special steel, low in phosphorus and sulphur, having a tensile



A 13½-Ton Stern Frame Forged by the Fore River Shipbuilding Company, Quincy, Mass.

strength of 51,350 lb. per square inch, elastic limit of 31,200 lb., elongation of 38 per cent. and reduction of area of 65.63 per cent., as determined from a test specimen taken from a full size prolongation of the forging. A metal possessing such elasticity and ductility obviously has many advantages over the wrought iron usually employed in forgings of this nature, especially from mechanical considerations. Heavy wrought iron forgings are more or less spongy, requiring after treatment to correct bad spots in the welding, and frequently a defective interior is only concealed by this treatment. Properly melted and selected steel ingots, however, make homogeneous forgings easily and perfectly welded, and, except for a tendency to corrode more rapidly, produce more reliable stern frames. The method of scarfing the two sections facilitates repairs to the part most subject to accident.

Reports that the Bessemer & Lake Erie Railroad, controlled by the Carnegie Steel Company, would shortly be in the market for 21 locomotives and 25 passenger cars are untrue. We are advised that this road will probably want some locomotives in the near future, but the number has not been determined, and it is not in the market for any passenger cars.

## A Bar Iron and Light Rail Mill.

### The Loucks Iron & Steel Company's Plant, Roanoke, Va.

The finishing department of the Loucks Iron & Steel Company's mill at Roanoke, Va., is so arranged that by the changing of but two stands of rolls the mill can swing from the rolling of merchant iron from muck bar or fag-gots to the rolling of light rails from old standard sections. In a number of other respects the layout presents features that make it an unusually flexible iron mill and rerolling proposition.

As originally built, more than 15 years ago, the mill comprised 15 double puddling furnaces, with a large hammer and a squeezer, a scrap furnace and a three-high train of muck rolls, the product being muck and scrap bar. In 1906 this mill was remodeled, and a finishing department was built, housed in a building 85 x 305 ft.

retary, and D. S. Loucks, treasurer. Albert Graham of the Graham Nut Company, Pittsburgh, is chairman of the Executive Committee, while P. H. Mynahan, formerly of Pittsburgh, who for several years was engaged in steel hoop manufacture at Atlanta, Ga., is general manager, located at Roanoke. The new finishing mill was designed by Mr. Mynahan and built under his supervision. Fig. 1 shows the ground plan of the entire plant, including both the old and the new mills, while Fig. 2 shows in detail the equipment and arrangement of the new mill.

#### Location.

The plant is located close to the Roanoke River, the Norfolk & Western road passing it on the side farthest from the river, while the Tidewater & Deepwater road, now called the Virginian Railroad, passes between it and the river. The principal shops of the Norfolk & Western are located in Roanoke, where cars are built and repaired. The Virginian Railroad has bought 100 acres of land in

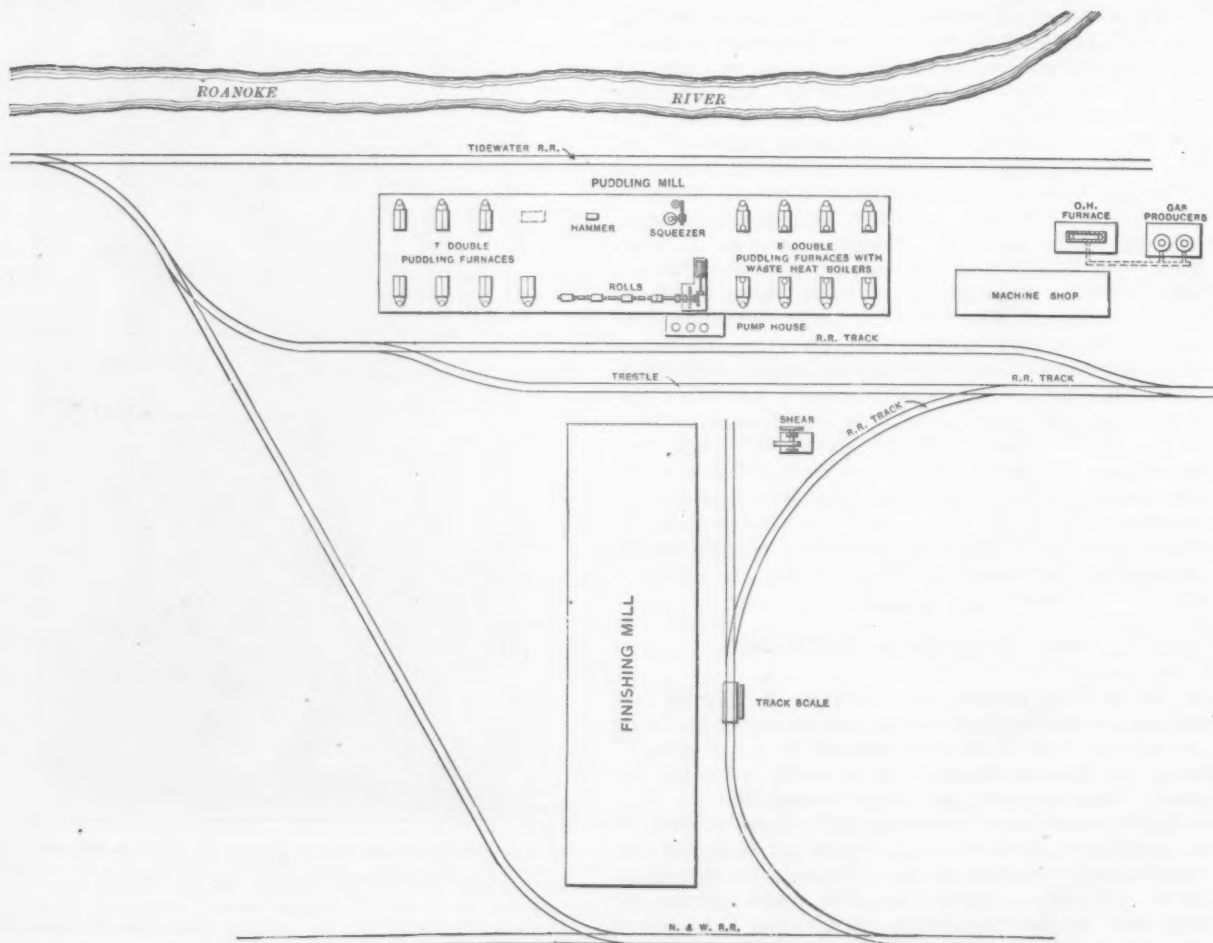


Fig. 1.—General Arrangement of the Rolling Mills of the Loucks Iron & Steel Company, Roanoke, Va.

This finishing department comprises two heating furnaces with waste heat boilers, a continuous rail heating furnace, a three-high roughing train and a Belgian train of five stands of rolls.

The original plant was built in 1891-92 by the Roanoke Iron Company under the direction of D. H. Lentz, its manager, and put in operation in February, 1892. The company had built and blown in Roanoke Furnace in 1890, and the iron mill was intended as an adjunct. The vicissitudes due to the collapse in the trade in 1893 stopped operations at both the blast furnace and the iron mill, and the ownership passed through various hands later, until in May, 1906, the Loucks Iron & Steel Company bought the iron mill but not the blast furnace, and with new capital remodeled the puddle mill and built the finishing mill. The blast furnace is now known as West End Furnace, and is owned and operated by another company.

The Loucks Iron & Steel Company is composed of Scottsdale, Pa., and Pittsburgh men. The Scottsdale officers are W. H. Fetter, president; J. W. Grantham sec-

Roanoke for shops. Its tracks are completed through Roanoke, but it is operating only the 150 miles west of Norfolk.

Roanoke is almost the center of the pig iron district of Virginia, being northwest of Pulaski City and directly south of Low Moor. At Roanoke there are, besides the West End Furnace, the two Crozer stacks of the Virginia Iron, Coal & Coke Company. Within a radius of 60 miles are located more than three-fourths of the blast furnaces in Virginia. With the ample supplies of coal and the nearness of blast furnaces and railroad shops, Roanoke is an excellent field for a mill of this description, both for the assembling of raw materials, including old rails and scrap, and for the sale of finished product, including merchant shapes and light rails.

#### Arrangement.

The principal buildings are arranged as a T, the old puddle mill constituting the top bar and the new finishing mill the leg, there being a space of 60 ft. between the two. A spur from the Norfolk & Western runs diagonally across the property to the Virginian Railroad. Viewing



the trackage system from the Norfolk & Western switch, a branch from the spur runs on the near side of the finishing mill, with a track scale by the building, farther along passing the yard shear and later connecting with a trestle running between the two buildings. Beyond both buildings this spur again connects with the trestle, while two other branches extend backward and pass to either side of the puddle mill. The trestle has space underneath for narrow gauge tracks from the side of the puddle mill building to the end of the finishing mill building, and also furnishes space for coal storage.

It will be seen that the track arrangement allows of a connection between the Virginian Railroad and the Norfolk & Western. It gives access to all important points in the plant by standard gauge cars, and by giving the principal tracks, and particularly the coal trestle, connections at both ends, allows a free movement of material without congestion.

#### The Old Mill.

The old mill building is 78 x 335 ft., and is entirely of iron construction, being covered with iron sheets. It has the unusual height for mills of this class of 26 ft. to the eaves. The 15 double puddling furnaces are placed toward the corners of the building. At one end are four double furnaces, on opposite sides, and with 28 ft. clear between furnaces. The other end contains four furnaces on one side and three on the other, leaving space for a heating furnace which may be installed later. In the central portion of the building are the hammer and squeezer, on the side farther from the finishing mill, and the three stands of rolls on the side nearer the finishing mill. The hammer is a new one, of 10,000 lb. capacity, replacing a lighter hammer installed when the plant was first built. The squeezer is driven by a vertical engine.

While the main source of steam is waste heat boilers on puddling furnaces, the machine shop, located just outside the old mill building, has a separate boiler plant, which can serve its engine and furnish steam to the pumps at times when the mill is not in operation. Normally the machine shop and pump are operated by steam from the waste heat boilers.

A plentiful water supply of good quality is available. Through strainers in the river, water flows into a reservoir on the bank, whence it is pumped to a tank the top of which is 40 ft. higher than the level of the mill floor. There are two Worthington pumps, one being kept in reserve.

The eight double puddling furnaces located at one end of the building are equipped with 54-in. by 20 ft. waste heat boilers, with two 18-in. return flues. These supply steam to the mill engine, to the hammer and squeezer engine, and when desired to the pump and machine shop.

The puddle mill comprises three-high pinions, a 22-inch roughing stand, a 22-in. finishing stand, and a three-high stand of 22-in. rolls for sheet bars or billets. These stands are driven by a 28 x 52-in. Hamilton Corliss engine.

#### The New Mill.

The new mill is lodged in a steel building 85 x 305 ft. This portion of the plant is entirely new, as noted, having been built in 1906. At the end nearest the old mill are located the two heating furnaces, the coal trestle being just outside the mill building at this end. The furnaces have hearths 7 x 16 ft. in the clear, straight draft, with provision for steam blast. The furnaces are each equipped with a Cook vertical water tube waste heat boiler of 200 hp. rated capacity, each boiler having a 60-ft. stack. Partly beside these furnaces, but nearer the mill engine, is located the furnace for heating old rails. This is a continuous furnace, with a clear space 11 x 35 ft.

The rolling equipment comprises a separate stand of three-high roughing rolls 72 x 18 ins., with three-high pinions. Beyond it, and with its first stand directly in the line of feed, is the 12-in. Belgian mill, of five stands of rolls with three-high pinions. The first three stands

of rolls are three-high, the remaining two being two-high.

These mills are driven by a 28 x 48-in. Lane & Bodley heavy duty engine. It is connected direct to the pinions of the roughing stand, and its 18-ft. flywheel with 44-in. face carries a belt by which the 9-ft. wheel of the Belgian mill is driven at double speed.

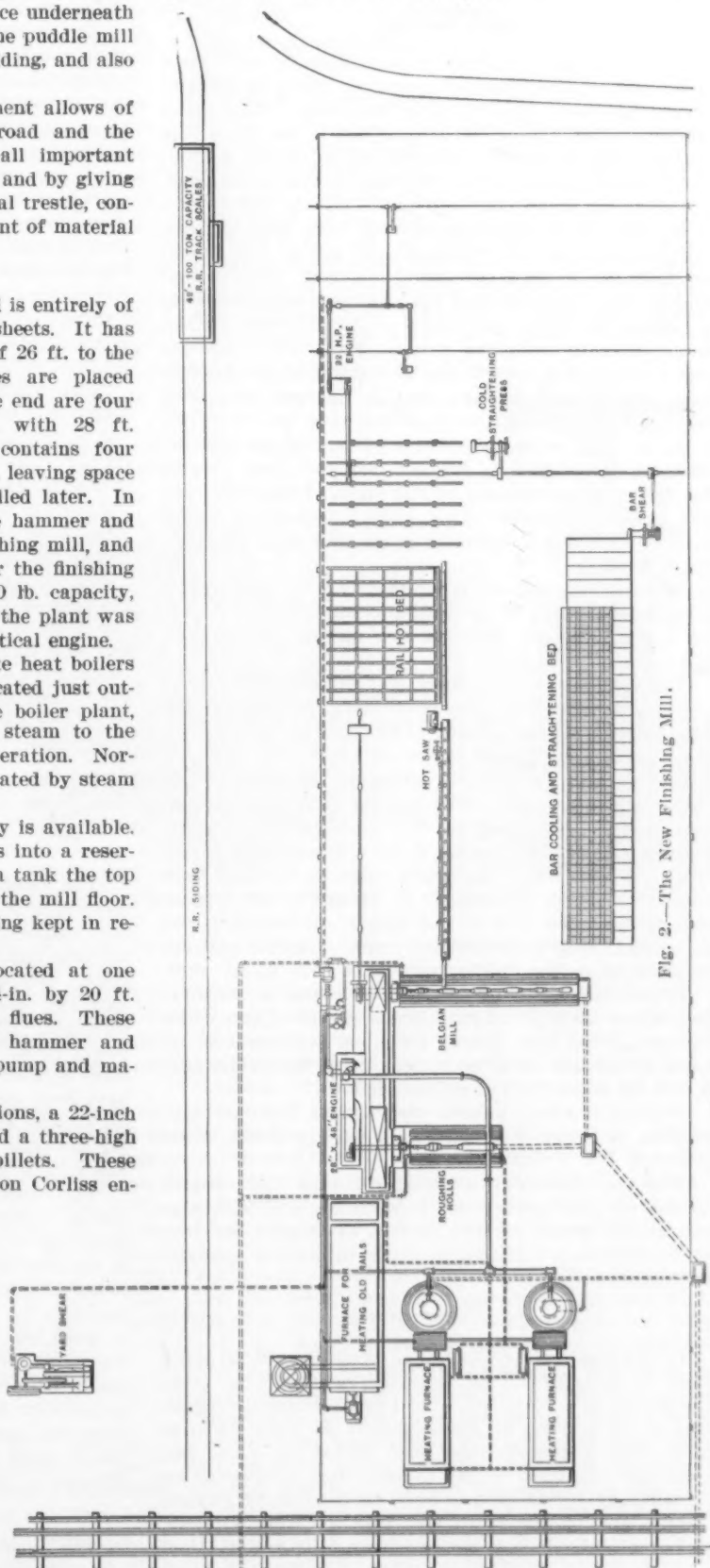


Fig. 2.—The New Finishing Mill.

#### Merchant Bar Rolling.

When rolling merchant bars the material for the two heating furnaces, whether muck bar piles or faggots, is brought from the old mill by narrow gauge track under the coal trestle. In rolling, the first stand in the Belgian train remains idle. The material is roughed on the three-high roughing train, and then passes to the Belgian train, starting with the second stand, three-high, then

going to the third stand, three-high, and finishing in the fourth or fifth, which are two-high. With this equipment rounds and flats, squares and bands are rolled. The finishing mill delivers on the cooling and straightening bed, towards the right. The bed is 90 ft. long, 80 ft. of the length being grated bars with excavation underneath for air circulation.

#### **Rail Rolling.**

In rolling rails the two heating furnaces with their waste heat boilers are used merely as steam generators, the old rails being heated in the continuous rail heating furnace. The rolling equipment used comprises the roughing stand and the first two stands of the Belgian mill. As the first stand of the Belgian mill is not used in rolling merchant bars the rolls in it do not require to be changed in changing the mill from bars to rails, only the rolls in the roughing mill and in the second stand of the Belgian mill being changed. This second stand is used as a two-high mill, giving a squabbling pass to reduce the height and regulate the thickness of the flange, after the roughing passes. From this squabbling pass the material goes to the first stand of the Belgian train, which is three-high, and is finished with four passes. This mill delivers the rails to a live conveyor, which is in line with the hot saw. From the hot saw the rails are transferred to the hot bed, and then pass to the cold press straightener or gag press. From this point they go to two multiple drills, whence they are delivered on cars on a small tramway to the mill yard for loading or storage.

The hot saw and conveyor are driven by a line shaft from the jack shaft of the Belgian train, with a belt making a quarter turn. The hot saw makes 1500 rev. per min.

The cold press straightener and drills are driven by a 32-hp. Troy vertical engine, running at 220 rev. per min. through a countershaft. The shaft of the straightening press is prolonged to the bar mill side, where it drives the shear. The cold straightening press can be changed to punch splice bars, making four holes at once.

Thus it will be observed that merchant bars are finished on the right hand side of the mill and rails on the left hand side, while the product can be changed from merchant bars to rails merely by firing the rail furnace and changing the rolls in two stands, the roughing and the second stand of the Belgian train. The rail rolls are designed for rolling finished sections 8 to 25 lb. per yard.

By the engine in the new mill is located a Cochrane feed water heater, and two double plunger Dean boiler feed pumps are also located here, one being kept in reserve, so that the entire equipment, as in the puddle mill, is directly under the eye of the engineer.

The yard shear, located just outside the new mill building, is designed to cut 5 in. square or round billets or axles.

The plant includes a detached 10-ton open hearth furnace with gas producers. This furnace was built with the original plant, for the purpose of refining pig iron for the puddling furnaces, in order to make a specially fine quality of puddled iron.

In the southwestern corner of Pennsylvania, 30 miles south of Pittsburgh, and near the center of the great bituminous coal basin, says the United States Geological Survey, is an area, 32 miles long by 18 miles wide, in which over 1300 wells have been drilled for oil or gas. Politically it forms Greene County, and is bounded on the north by Washington County, on the east by Fayette County, and on the south and west by West Virginia. Topographically it is a monotonously hilly region, Monongahela River, a navigable stream, forming its eastern boundary. Since 1886 Greene County has continuously produced oil, and since 1890 it has also yielded a large amount of natural gas. All of this oil and gas is transported by pipe lines. Part of the oil is pumped to a central station on Monongahela River 2 miles above Morgantown, W. Va., and thence to the seaboard, and a part is carried to storage tanks at Meadowlands, Washington

County, Pa. Much of the natural gas used in the vicinity of Pittsburgh comes from Greene County.

#### **The Minnesota Steel Company's Plans.**

In connection with its proposed Minnesota Steel Works at Duluth, the United States Steel Corporation is to build a railroad across the river and into Superior, Wis., to tap all trunk railroad lines reaching the head of Lake Superior at some point outside of the ever increasing congestion of traffic. This line, on the Wisconsin side, and the Duluth, Missabe & Northern, on the Minnesota side of the harbor, will permit the Minnesota Steel Company to reach any sites of future works that will work up raw steel into finished products. It is expected, as one of these, that a large pressed steel car works will be built here as soon as the Minnesota Steel Company is in position to furnish the steel. The company's railroad, exclusive of the right of way, will cost about \$1,300,000. Land purchases that have been made have been for about \$500,000 and cover 1700 acres, with from 18 to 21 ft. depth of water along a 3-mile front.

The original plans of the works have already been enlarged and now contemplate the construction of two 500-ton blast furnaces; sufficient by-product coke oven capacity to furnish fuel; sufficient open hearth furnace capacity to take care of the pig iron, and sufficient billet and finishing mills to take care of the open hearth product. Twelve miles of standard gauge tracks will be laid inside the works and 150 dwellings will be built. The intention is that this works shall care for the Steel Corporation's business in territory which can be better reached from the head of the lakes than from Chicago, and as that territory is constantly growing in its demands and is the one section of the United States where railroad building must continue more rapidly than in any other, the future of this works is likely to be more important than has been announced.

#### **The New Castle Plant of the American Can Company.**

The American Can Company acquired some time ago upward of 10 acres of land at New Castle, Pa., on which it is building a very large plant for the manufacture of tin cans and other products made from bright and black plate. The main building will be 82 ft. wide and 500 ft. long, two stories high and of brick and yellow pine construction. This building is nearly completed, and the power plant is also practically finished. The latest designs of labor saving machinery and conveying apparatus have been ordered and will be installed in the main building as soon as it is ready for it. When the present building has been finished the erection of several other buildings will be started.

The process of manufacture will be such that the plates will be started at one end of the plant and will be gradually worked from that end to the other until finished in the form of tin cans and other products made by the concern. The plant will have ample shipping facilities, and it is the expectation of the American Can Company to make the New Castle Works its largest plant. When completed and in operation it is expected that fully 1000 hands will be employed. Henry Ross, for three years connected with the Philadelphia plant of the American Can Company, has been appointed superintendent of the New Castle plant and is now located there looking after the interests of the company.

The foundation for the reports that the Krupp Works are engaged on very heavy orders for war material for Japan is now said to be simply that the Krupp Works are building 30 12-in. guns for use on Japanese battle-ships, and are carrying out a contract made soon after the war with Russia ended for re-equipping the Japanese field artillery. It is said that the order was only placed with the Krupp Works because British works were filled with orders three years ahead for guns of this caliber.

### The Pittsburgh Clean-Seat Valve.

A new valve designed to prevent retention of sediment or other foreign matter upon its seat is manufactured by the Pittsburgh Gage & Supply Company, Pittsburgh, Pa., and has been given the trade name the "Clean Seat" valve. The construction of the valve and the principle of its seat cleaning feature are clearly shown in the accompanying illustrations. Fig. 1 shows the external appearance, and Figs. 2 and 3 sections of the valve at the beginning and toward the end of the closing movement.

The seat cleaning effect is produced by a hollow cylindrical extension beneath the valve disk, which fits loosely in the seat opening as the valve is being closed. The wall of this extension is penetrated by a slot through its circumference, lugs being provided in the inside to support the separate portion. As the valve closes the flow is throttled when the disk extension enters the seat opening, but steam continues to blow across the valve seat through the slot until complete closure is effected. The manner in which the radiating steam jet sweeps the valve seat under these conditions is readily apparent

slightly for such buildings. In fireproof buildings, or where there were automatic sprinklers, an increase of 50 per cent. might be allowable. Office buildings, he thought, should not be built higher than 125 ft., and no buildings should occupy more than 20,000 to 30,000 sq. ft. It was also suggested that the skyscraper might be regulated if such buildings were taxed according to height.

### Work at Canadian Iron and Steel Plants.

TORONTO, September 9, 1907.—So far nothing but satisfaction is expressed with the results of operations at the Atikokan Iron Company's new blast furnace at Port Arthur. It is now producing up to its full capacity of 100 tons a day, and the pig iron is said to be of excellent quality. Of all the furnaces producing coke iron in Canada, this is the only one that is running solely on domestic ore. There were doubters as to the feasibility of manufacturing a marketable pig iron entirely from the ores obtainable from the Atikokan range, but apparently the company has overcome the difficulty. Hugh Suther-

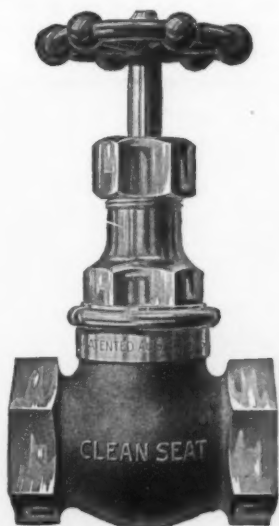


Fig. 1.—Exterior.

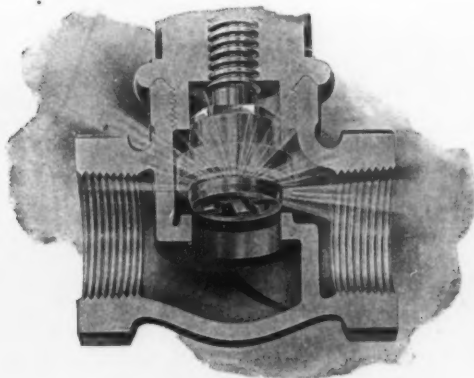


Fig. 2.—Section at Beginning of Closing.

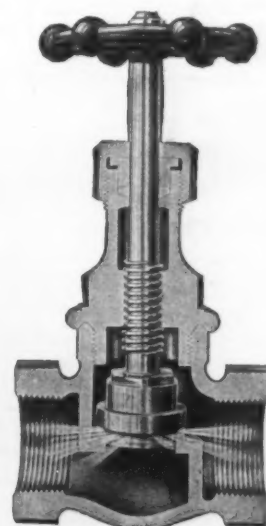


Fig. 3.—Section Nearly Closed.

The Clean-Seat Valve Made by the Pittsburgh Gage & Supply Company, Pittsburgh, Pa.

from its action as shown in Fig. 3. It is claimed that the cleaning jet applied in this way will not cut the faces of either valve or seat, since the steam does not impinge directly upon the meeting faces, as is frequently the case with imperfectly closed valves.

Attention is called to the fact that the stem may be packed with the valve open, as the top of the valve disk is faced to seat perfectly against the bottom of the bonnet when fully open. The bonnet itself is strongly constructed, with a long thread entering the valve body. Another feature that insures a tight, strong fit is the V joint between the bonnet and the body. These valves are made of brass in angle and globe patterns, in medium and extra heavy weights for all classes of work. The same principle of construction is likewise applied to a Clean Seat blow-off valve for boilers, which is also being placed upon the market by the same company.

**Skyscrapers and Fire Protection.**—At a meeting of the Committee on Limitation and Area of Buildings of New York City, the Building Code Revision Commission last week, President George W. Babb of the New York Board of Fire Underwriters said that the board feared a great conflagration in the skyscraper district. If such a fire should wipe out property worth \$1,000,000,000, he added, the insurance companies could not pay more than 20 or 35 per cent. of the losses. Starting in the upper floors of a 20 or 30 story building, such a fire would be beyond the reach of the Fire Department. Mr. Babb suggested the limitation of nonfireproof buildings to five stories or 55 ft. high, the area of 5000 ft. to be increased

land, the president, has stated that it is the intention to adhere to the policy of using only Ontario ores. There are, he says, two distinct ores in the deposits drawn from, and these combine to yield the kind of pig iron that is in demand. It is true, the company has not yet sold much iron, but it has inquiries that indicate an adequate market for the quantity and quality of iron it is making. It is expected that the cost of production will be materially lowered when some additional apparatus for saving labor is installed. The roaster is a very important part of the plant. In it the ore appears to be successfully treated for the elimination of the sulphur. Besides President Sutherland's assuring statement as to the character of the ore, the newspapers have published the view of D. D. Mann to the effect that the iron produced is a Bessemer pig. Mr. Mann is vice-president of the Canadian Northern Railway Company, and he and Mr. Mackenzie have a large interest in the Atikokan Iron Company. His statement as to the quality of the iron is probably not based on technical knowledge. It is expected that the plant will be increased in the early future to a capacity double that it now has. Though the company's output necessarily falls much below that of the furnaces of the Dominion Iron & Steel Company, of the Nova Scotia Steel & Coal Company and of the Algoma Iron Company, its bounty earnings will be relatively higher, owing to the larger proportion of domestic ore used by it than by them.

Senator Forget is given as authority for the statement that the Dominion Iron & Steel Company has decided to increase the production of ore at its Wabana mine and to sell a part of the output abroad. It appears



to be a certainty that the extent of the deposit is much beyond what the company will require to maintain its Sydney plant in operation for an indefinitely long period. At the present time all the company's blast furnaces are at work.

The Dominion Iron & Steel Company and the Algoma Iron Company were again the successful tenderers for the rail order put on the market by the Transcontinental Railway Commission. The total quantity of rails called for by the order was 36,000 tons. This is about evenly divided between the two companies, the former getting \$33.50 per ton, delivered at Quebec City; the latter getting \$34, f.o.b. at Fort William. American and British companies tendered but their prices, including the duty, were higher. The Sydney rails are to be laid on the National Transcontinental east and west of Quebec City, and the Sault rails are for the section between Lake Superior Junction and Winnipeg.

C. A. C. J.

### The New Western Freight Classification.

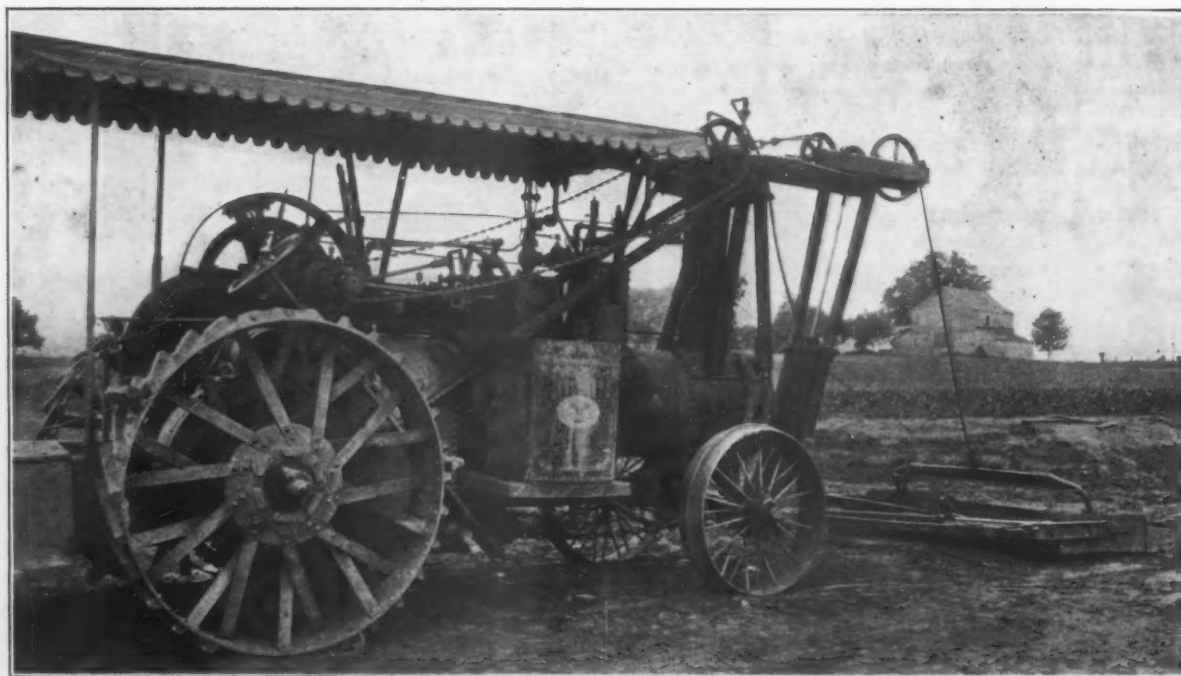
The new Western classification, which takes effect October 1, contains few changes affecting shippers of iron or steel products. There is no general change in minimum carload weights, and the only changes in class ratings

## The Wolfe Contractors' Steam Shovel.

### An Attachment for Ordinary Traction Engines.

For all kinds of loose earth moving where a traction engine can be used the steam shovel attachment illustrated herewith is adaptable. It was invented by C. Harlan Wolfe of Mecklenburg, N. C., and has been used with considerable success in local operations, as explained later. It is intended to come between the old Wheeler shovel, pulled by teams, and the railroad steam shovel, which has to be operated on a track and is not practicable for ordinary purposes. In long shallow cuts where it is not feasible to use a heavy railroad steam shovel this traction shovel finds its ideal application. Hard surfaces must first be plowed, which can be done with the traction engine if too hard to plow with teams. This teams will move 400 cu. yd. of dirt in 10 hr. on a haul of machine, it is claimed, will remove dirt cheaper than can be done by use of wheelers on the shortest hauls. Two 200 ft., and three teams the same amount on a 300-ft. haul; in other words, a team should be used for each 100 ft. of haul.

The machinery for operating the shovel is very sim-



A Traction Engine with the Wolfe Steam Shovel Attachment in Filling Position.

are on a few unimportant items, like sad irons. One of the new features is a definite list of the machinery and supplies that may be shipped together in mixed cars as "mining machinery." Another feature is an elaborate set of rules to govern the crating of buggies, carriages and other vehicles, agreed upon with representatives of the vehicle manufacturers, that it is hoped will minimize loss or damage in transit, which formerly resulted from flimsy crating. The carriers have also adopted more stringent rules to regulate the use of fiber board boxes or packages, with or without wood crating.

The Western Classification Committee is the only body of its kind that makes changes in the classification of freight in open meetings, which shippers may attend. It has followed this commendable policy for many years, giving all interested shippers a hearing at open sessions of the committee before changes are made in class ratings or rules.

The contracting office of the Virginia Bridge & Iron Company heretofore located at Little Rock, Ark., has been transferred to New Orleans, La. The office will be in charge of F. E. Golian, civil engineer, who has been connected with the engineering department of the company for some time, but more recently with the Atlanta office.

ple and is mounted on a common traction engine. Unlike other shovels, this one goes before and is pushed by the engine. The attachment is secured by clamps, and no bolts or studs are put into the boiler. The whole affair can be taken off in a few minutes, and the engine is left precisely as it was before the attachment was placed on it. No additional engines are required, with the exception of a steam cylinder, which is a part of the attachment and does the hoisting by direct action, as the illustrations show. The shovel will swing to a right angle with the boiler, so that it can be dumped at any position within 180 degrees. This craning is done by a worm wheel and worm chain driven from a clutch connection to the crank shaft of the engine. The shovel is made of plain boiler steel, with a detachable cutting edge, and the shovel can be used to wear out at least 10 edges. When the shovel is full it is hoisted in horizontal position high enough to allow a wagon to drive under it, and then the load is dumped into the wagon by releasing a trip which is controlled by a cord within reach of the engine operator.

Six hundred loads have been handled in a day of 10 hr. on a 900-ft. haul, where 12 wagons were kept busy. This shovel has been tested in all kinds of work. In the basements for buildings it has done the work of 25 hands, and it has been used in several contracts where no shovel

hands, wheelers or drags were employed. In every case it has proved the cheapest way of moving dirt.

Where the engine is of 15 to 18 hp. a  $1\frac{1}{4}$ -yd. shovel may be easily handled, and with a 20-hp. engine a  $1\frac{1}{2}$ -yd. shovel is possible, which is about as large as can be used practically to advantage. In hauling in wagons and with a  $1\frac{1}{4}$ -yd. shovel the equipment can be depended upon to handle 1 cu. yd. cut measurement for each load.

For irrigating purposes, where long shallow ditches have to be made, the machine will do the work without the use of teams by loading and simply dumping to the side. When moving from one cut to another or long distances the shovel is raised to clear obstructions. Anywhere that a team can be expected to pull an average load on a wagon the steam shovel can be used. It is the belief of the inventor that where heavy snowfalls are common that this same steam shovel would be useful in clearing the streets, although no test of this character has been made. By removing the shovel and shovel frame the remainder of the attachment forms a very handy portable crane for loading heavy weights, such as castings, logs, stumps, rocks, &c., into wagons or cars, and may effect a considerable saving in time and expense. It is declared to be as simple as any machine ever built for this kind

flight of one kilometer (3280 ft) in a straight line. The rules for the competition have been drawn up by a committee of the Aero Club. The competition is to be progressive in character; that is to say, if the flight of the predetermined distance is accomplished this year, next year a longer flight will be required. The conditions of the yearly contests will thus be such that they will be just ahead of the art, in order to induce inventors continually to strive to improve and perfect their machines. After every competition the name of the winner will be inscribed on the trophy. If it is won three times in different years by any competitor the trophy will become his personal property.

#### A Standard Metric Cone for Twist Drills in Germany.

In the spring of the current year the Association of German Machine Tool Builders, at the suggestion of the Administration of the Royal Railroads at Berlin, decided to push again the introduction of the standard metric cone for twist drills, reamers, &c., which was worked out jointly 10 years since in conjunction with the Association of German Engineers.



The Wolfe Steam Shovel Attachment for Traction Engines, in Dumping Position.

of work, and the first ever built capable of lifting  $1\frac{1}{4}$  cu. yd. where the machine itself does not weigh over 10 tons. One operator is all that is necessary in the usual operation of the shovel. Where the full capacity of the machine is wanted, however, a fireman or unskilled helper is necessary. In choice or fixed places it is possible to load into wagons 100 loads per hour. Two loads per minute have been handled where there were no wagons to be used.

The attachment is manufactured by the Moffatt Mfg. Company, Charlotte, N. C., and it is the expectation that it will be on the market within the next year.

**A Flying Machine Trophy.**—The growth of interest in aerial navigation has become so general that the *Scientific American* has felt justified in offering a trophy for competition for heavier than air flying machines. It is expected that in time such a trophy will become as famous as that blue ribbon of the sea—the 'America Cup.' In order that the competition might be held under the auspices of experts, this trophy, which is a splendid example of the silversmith's art, valued at \$2500, has been given under a deed of gift to the Aero Club of America, to be competed for annually by both American and foreign inventors. The first competition will occur at the Jamestown Exposition, September 14, 1907, and will be for a

The idea of supplanting the American standard by the metric system has met with the unanimous opposition of the German manufacturers of twist drills. They protested at the time when the proposition was before the machine tool builders, and on March 9 called a meeting of twist drill makers at Hanover. Resolutions were unanimously passed that the change would not be advantageous, but would inflict great injury not alone upon users but also upon the twist drill industry of Germany. The makers therefore requested the State authorities and consumers generally to abstain from introducing a new German or metric cone until its general introduction is assured by international agreement. The secretary of the German Navy has advised them that he can not take up the subject until the machine tool builders and the tool makers reach an agreement.

The Standard Scale & Supply Company, 243-245 Water street, Pittsburgh, has recently completed the third 200-ton suspension track scale for the Jones & Laughlin Steel Company. It is stated that at the present time there are no larger scales in the United States or in the world. A scale of this size requires great care both in its building and in its erection, and the fact that the Standard Scale & Supply Company has furnished three to one customer, indicates very strongly that the scales are giving satisfaction.



## The German Iron Market.

### The Steel Syndicate and Prices.

BERLIN, August 29, 1907.—All recent reports from the iron industry agree in representing the state of business as very active, while work for remoter dates is not coming into sight in a satisfactory way. A feeling that price reductions must soon be undertaken by the great combinations has become fixed in the minds of consumers; hence these latter think that their safest policy for the present is to watch and wait, and meanwhile to buy only what they absolutely need for their momentary wants. This is particularly true of half rolled steel material for further manufacture. While the demand for it is very brisk, all new orders are for short periods. Consumers have been relying with considerable confidence upon predictions that the Steel Verband would soon be compelled to reduce prices. A meeting of the organization will be held in about three weeks, and this question will come up; but the leading spirits in it have already indicated that no reduction will be made, since the business situation, in their opinion, does not warrant a cut. The Verband has not yet opened sales for this specialty for the fourth quarter of the year, particularly in view of the fact that the price situation in class B goods, *i. e.*, every form of steel except half rolled and structural material, rails and other track building steel, which constitute class A, is far from satisfactory.

### Good Reasons for Maintaining Prices on Class A.

There is much to support the view of the Verband that no sufficient reasons exist for reducing the price of unfinished steel. The demand for it is still so keen that consumers cannot always keep their mills supplied on time, and in some cases recently it has been reported that mills had to stand idle until steel should arrive. Moreover, the foreign demand for steel is brisk, and the Verband is compelled, owing to the home situation, to restrict its foreign sales more than ever.

The other two lines of class A goods—namely, structural steel and rails—are also firmly held. The Verband fixes prices for this class and finds no difficulty as yet in maintaining them. It is mentioned in some of the reports that the demand for structural goods is dropping off, owing to the fact that the money stringency is curtailing building operations; but the Verband's latest shipping statistics give no warrant for this statement. July shipments of structural shapes having amounted to 179,700 tons, which is the biggest movement for any one month since August, 1906. The situation in respect to steel rails is equally satisfactory, the Verband mills having on hand very large orders for home and foreign delivery. It is mentioned, furthermore, that a number of orders are under negotiation which will prolong the volume of visible work considerably. This week it was announced that the Verband took some large foreign orders for rails at a price 20 marks higher than the home price. The business booked in rails will keep the mills busy into next year.

### The Situation in Class B Less Satisfactory.

The situation in the rest of the steel market (class B) is less satisfactory than just described for class A. Considerable irregularity is reported in plates, sheets and bars, in all which lines the works are left to sell their product at their own prices. In all these considerable price cutting has been going on, and the amount of work on hand is not everywhere enough to keep the mills fully employed. The great mixed works, indeed, still have work enough, but this is not the case with all the mills engaged exclusively in rolling bought material. Some of these are forced to look for work and to make price concessions in order to get it. As far as bars are concerned, this condition of the market applies only to soft steel, not to wrought iron bars. The latter, on the contrary, remain in good demand at firm prices, and it is said that mills in the Siegerland District have recently taken large orders at 180 marks per ton. The strength of this specialty is explained through the circumstance that so many of the large companies have discontinued the puddling process within the past ten years, and the reduction has finally gone too far.

### Sheets and Wire.

The rollers of black sheets are trying to induce the steel manufacturers and the coal syndicate to re-establish the drawback on their exported goods. They point out that the discontinuance of the drawback has restricted their foreign trade and compelled them to push their sales in the home market by cutting prices. The rollers of bars are also in a similar position, and it is expected that the Verband, at its next meeting, will do something for their relief. Whether this will take the form of a drawback upon exported goods, or a straight cut of prices for material used, has not yet been made known. In the case of the wire manufacturers, who were getting a drawback of 7.50 marks a ton on exported wire from the Wire Rod Association, a change has been made in the method of promoting exports. The wire drawers were dissatisfied with the amount of the drawback and were making efforts to get it raised to 20 marks, but the Wire Rod Association recently decided to abolish the drawback altogether and, instead, to reduce the price of wire rods by 10 marks the ton upon proof that the wire has been exported. The wire rod mills are very busy, as the manufacturers of wire and wire nails are well supplied with orders. The great mixed works are said to have orders for drawn wire till the end of the year. The wire nail mills, however, complain that prices are being cut on nails by the numerous unorganized concerns.

### Pig Iron Prices Reduced Although Conditions Are Good.

The pig iron situation is in the main satisfactory, though prices have, in part, been further reduced. This is true, however, only for places and qualities affected by the imports of English foundry iron, and it is also true in the northeastern section and the region around Berlin, where an independent concern, the Kraft Works of Stettin, is selling at cut prices and making considerable trouble for the organized furnaces. The Kraft concern is able to produce iron at a considerable advantage, being situated on tidewater. It was disposed to utilize its position to force bigger sales, and for this reason it was not willing to renew the selling arrangement which it had kept up with the Duesseldorf Syndicate. There are no indications that the disagreement will be adjusted. On the other hand, the new iron company at Luebeck, which blew in its first furnace last month, has agreed to act in harmony with that syndicate. The company at Luebeck also set into operation several weeks ago a battery of 50 coke ovens, and another battery is building. When, therefore, the second furnace is blown in during the next month or two, the company will be amply supplied with coke.

Reductions in pig iron have been mainly confined to Luxemburg foundry. The following price reductions were announced at the last quotation day, August 16, on the Duesseldorf Exchange: English foundry, No. 3, sold at 76 to 77 marks (two weeks earlier at 76 to 78); Luxemburg, No. 3, 70 to 72 marks (72 to 74); German foundry, No. 3, 78 marks (81); common bars of soft steel, 140 to 142 marks (140 to 145).

The scarcity of pig iron has not yet been relieved. There is still some complaint that iron cannot be delivered on time, and nowhere are supplies accumulating at the furnaces. About two weeks ago the Duesseldorf Syndicate began to take orders for pig for 1908 delivery at unchanged prices; and at the same time it was noted that the demand for foundry qualities had become more brisk. The Luxemburg Syndicate also mentions an increasing volume of business, and the furnaces there are reported as regretting their recent reduction of prices.

### Production and Consumption.

The July statistics of production do not confirm the view that a downward movement has begun in the German iron industry. That month beat all previous records with 1,113,966 metric tons of pig iron, being the first time that the production exceeded 1,100,000 tons for a month. The make for July was 69,000 tons more than for June, and 59,800 tons more than for July, 1906. The consumption of pig iron in July reached 1,120,000 tons, which also beat all previous records. This is at a yearly rate of about 470 lb. per head of the population, as compared



with about 297 lb. per head for the year 1906. The production of pig for the first seven months of this year amounted to 7,469,919 tons, which means a gain of 279,036 tons over the like period of 1906. The year's production will probably exceed 13,000,000 tons, as against 12,478,067 tons in 1906.

Notwithstanding the heavy production of iron this year, Germany is keeping more of its iron for home consumption, and is also drawing larger supplies from abroad than last year. Imports of iron to the end of July reached 465,420 tons, or 134,806 tons more than for the same time in 1906, while exports reached only 1,516,595 tons, or 247,709 tons less than last year. There has thus been a net gain of 661,550 tons in the home consumption for seven months. That does not look as if Germany was about to begin a period of reduced prosperity.

#### Working Harder for Export Orders.

The export market, nevertheless, begins to show signs of the changed situation here in Germany. It is mentioned, for example, that the mills are now trying to get exporters to place orders for longer terms than these have been accustomed to give. This must be regarded as a measure of insurance for the future, inasmuch as home consumers, as already mentioned, are very slow about offering to buy for remoter periods. In view of this changed situation it is expected that foreign buyers will avail themselves of the opportunity to put pressure upon German prices. Among special features of the export market it is mentioned that Canada and East Asia are trying to place orders for heavy castings. India has ordered not less than 5730 railroad cars of various kinds in Germany, which will insure considerable work for the iron trade. Canada, Brazil, Chile and Australia have sent in large orders for cutlery, but in most cases such orders are accompanied with price conditions which tend to render their acceptance rather difficult. South American countries and Canada are taking large quantities of tin plates, and Canada is ordering heavily of the higher qualities of pig iron.

Business with the German machinery shops remains pretty good, most of them still having orders on hand to keep them busy for several months. Export business, however, is feeling more sharply than usual the competition of English shops. It is mentioned, moreover, that German machinery of various kinds is making good headway in East Asia in competition with English goods. In one specialty German foundries are beginning to displace English goods in foreign markets—namely, rolls for rolling mills. These goods were formerly imported from England in large quantities by the German mills themselves; but these have now succeeded in making rolls better and more cheaply than the English; and foreign buyers have begun to find out this fact.

#### Activity in Expansion.

Various schemes for new works or annexes to old ones are still on foot. The Schulz-Knaut Company at Essen, which has hitherto been rolling plates from material bought from Krupps, intends to build a steel mill of its own. The Oberbiller Stahlwerk has recently put into operation its new Martin steel plant. The Phoenix Company, which absorbed the Hørdor Works nearly a year ago, intends to rebuild all the furnaces acquired with them. A new furnace on modern lines has just been blown in. August Thyssen, one of the greatest coal magnates of the Rhenish-Westphalian region, has recently acquired extensive property at Rheinberg, near the lower Rhine, with a view, it is authentically reported, of erecting a great establishment for the manufacture of locomotives and other machinery. The Rheinische Stahlwerke is erecting near Duisburg a new blooming mill and a Martin steel plant.

A London Times correspondent writes that there are now about 4800 miles of railroads in operation in Japan proper, besides a considerable amount under construction. Of this total, of which the first 18 miles, from Yokohama to Tokio, were opened in 1872, the Government had built and owned 1535 miles up to 1906, when it adopted the policy of acquiring all the privately owned

railroads used for general traffic. By October the purchase of 32 lines, operating 2812 miles, will be completed, bringing the total of Government lines to about 4350 miles, and leaving only 450 miles of short lines under private ownership and operation. Adding 260 miles in Formosa, purchased from the Chinese Government when that island was acquired, brings the railroad mileage on Japanese soil early in 1907 to 5060 miles. The further addition of 609 miles in Korea and of 523 miles in Manchuria, over which the influence of Japan has been extended, makes a total of 6192 miles of railroad in Japanese territory.

#### A Labor Adjustment at British Shipyards.

The trouble between the British Shipyard workers and the Federated Shipbuilders, which at one time promised to reach large proportions, has been settled. The principal feature of the agreement, which was reached on August 23, is the proviso that conferences shall be held at once between the union and the employers' association "in order to arrive at a permanent agreement for insuring that no extreme measures shall be resorted to on either side without first having full discussion of the question at issue." It is expected an arrangement will result, similar to that now existing between the British Machinists' Union, known as the Amalgamated Society of Engineers, and the Engineering Employers' Federation. The general terms on which the recent trouble over apprentices was settled between the Shipbuilders' Employers' Federation and the Boilermakers and Iron and Steel Shipbuilders' Society are the following:

(1) No stoppage of work shall take place on any question pending the discussion of the question in the following manner—viz.: (a) In the yard or place where the dispute arises; (b) failing settlement then, by the local employers' association and the responsible local representatives of the society in local conference; (c) if necessary, by the executive board of the federation and the executive council of the society. (2) There shall be no interference with the working of such overtime as may be necessary pending an agreement on the subject between the federation and the society. (3) Journeymen shall not be penalized by the society in any way for carrying out their engagements with their employers during their apprenticeship.

The union withdrew from its position regarding the employment of apprentices at the Walker Shipyard and the kind of work the company might give them to do.

#### The Rubber Covered Wire Manufacturers.

The Association of Rubber Covered Wire Manufacturers of the United States convened at Bristol, R. I., September 6 and 7, the occasion taking the form of an outing rather than a business meeting. No routine business was transacted, discussions of trade topics being confined to informal conversation between members. The manufacturers met at Providence on the first day and were conveyed in automobiles to Bristol, where they were the guests of Col. Samuel P. Colt at a clam bake at his summer place on Pappoosequaw Point, and there was a dinner at the Belvedere in the evening. On the second day the programme covered golf, a dinner at the Squantum Club, Providence, and a sail down Narragansett Bay to Newport in the afternoon. Those present were D. B. Bullen, General Electric Company; H. D. Reed, Bishop Gutta Percha Insulating Company, New York; R. E. Galaher, George B. Wilcox, New York Insulated Wire Company, New York; W. C. Candee, Okonite Company, New York; George A. Cragin, F. A. Keyes, American Steel & Wire Company; C. Edward Murray, Crescent Insulated Wire & Cable Company, Trenton, N. J.; India Rubber & Gutta Percha Insulating Company, New York; F. J. Newbury, John A. Roebling Sons Company, Trenton, N. J.; Leroy C. Clark, Safety Insulated Wire & Cable Company, Perth Amboy, N. J.; John C. Bridgman, George B. North, Hazard Mfg. Company, Wilkes-Barre, Pa.; W. A. Connor, Standard Underground Cable Company, Pittsburgh; Le Baron C. Colt, F. L. Dunbar, National India Rubber Company, Bristol, R. I.; W. F. Field, H. O. Phillips & Co., Pawtucket, R. I.

## The Republic Iron & Steel Company.

### A Record Breaking Year.

The eighth annual report of the Republic Iron & Steel Company, covering the operations of the fiscal year ending June 30, 1907, is exceedingly satisfactory. The information given is comprehensive, fully meeting the requirements of the times for detailed reports by corporations. Both the volume and the tonnage of business for the fiscal year were the largest in the history of the company. The gross earnings for the past fiscal year were \$31,227,432.56, against \$26,196,438.85 in the previous year and \$22,188,842.79 in 1905. The net profits were \$4,193,407.91, or \$964,245.71 more than in the preceding year. The production of finished and semifinished products, excluding semifinished products used for conversion, was 804,360 gross tons in the past year, against 742,435 tons and 672,012 tons, respectively, in 1906 and 1905. The income account shows the following comparison:

|  | 1907.       | 1906.       | Increase.   |
|--|-------------|-------------|-------------|
| Gross profit.....                          | \$5,027,741 | \$3,777,401 | \$1,250,340 |
| Depreciation, interest, discounts, &c..... | 1,298,496   | 1,038,840   | 159,656     |
| Net profit.....                            | \$3,729,245 | \$2,738,561 | \$990,684   |
| Preferred dividends.....                   | 1,429,183   | 1,429,183   | .....       |
| Surplus.....                               | \$2,300,062 | \$1,309,378 | \$990,684   |
| Previous surplus.....                      | 3,133,283   | 4,010,329   | \$877,046   |
| Total surplus.....                         | \$5,433,345 | \$5,319,707 | \$113,638   |
| Charged off.....                           | *1,633,352  | 2,186,424   | \$553,072   |
| Surplus.....                               | \$3,799,993 | \$3,133,283 | \$666,710   |

\* Appropriated for arrears of 8 per cent. dividend on preferred stock, making the dividend fully paid up to date.

† Surplus after preferred dividends is equal to 8.45 per cent. earned on the \$27,191,000 common stock outstanding.

‡ Decrease.

The condensed general balance sheet as of June 30 last compares with the previous year as follows:

| Assets.   |  | 1907.        | Increase.   |
|---|--|--------------|-------------|
| Cost properties.....  |  | \$53,092,153 | \$2,038,760 |
| Other investments.....  |  | 853,949      | 436,111     |
| Cash deposited with trustees for redemption of notes and bonds..... |  | 577,995      | *418,375    |
| Inventories.....  |  | 4,278,143    | 884,738     |
| Accounts and bills receivable.....                                  |  | 4,784,039    | 1,109,506   |
| Cash.....   |  | 1,695,326    | *1,557,957  |
| Deferred charges.....   |  | 827,575      | 247,940     |
| Totals.....   |  | \$66,089,180 | \$2,438,673 |
| Liabilities.  |  |              |             |
| Common stock.....   |  | \$27,191,000 | .....       |
| Preferred stock.....  |  | 20,416,900   | .....       |
| First mortgage gold bonds.....                                      |  | 8,625,000    | .....       |
| Collateral trust 5 per cent. notes.....                             |  | 563,000      | *\$381,000  |
| Potter Ore Company bonds.....                                       |  | 350,000      | 350,000     |
| Mineral fund.....   |  | 584,544      | 131,402     |
| Furnace fund.....   |  | 125,873      | 75,873      |
| Fire and accident insurance fund.....                               |  | 228,071      | 117         |
| Contingent fund.....  |  | 199,206      | 199,206     |
| Accounts payable.....   |  | 3,047,284    | 1,374,292   |
| Taxes accrued.....  |  | 75,078       | 6,205       |
| Interest accrued.....   |  | 114,850      | *3,962      |
| Dividend, preferred, payable July 1, 1907.....                      |  | 768,380      | .....       |
| Profit and loss surplus.....  |  | 3,799,994    | 667,710     |
| Totals.....   |  | \$66,089,180 | \$2,438,673 |

\* Decrease.

The report calls attention to the liberal policy followed in accounting, as increased charges against earnings were absorbed on account of reconstruction, mineral depletion and extraordinary maintenance during the year amounting to \$413,094.81, as against the charges absorbed for the preceding year, which were on a liberal scale.

From the formation of the company to June 30, 1907, the outlay for new construction and improvements has been \$11,253,535.16, of which \$8,167,750.80 was expended in the Northern District and \$3,085,784.36 in the Southern District.

The report of President John A. Topping is in part as follows:

#### Rolling Mills and Factories.

The policy of concentration and improvement heretofore inaugurated has been vigorously continued. The Springfield Mill, heretofore reported on the inactive list,

was dismantled and the property was entirely disposed of during the year. The Mitchell-Tranter Works, also on the inactive list, has been partially dismantled and disposition of this property has also been authorized by the Executive Committee. While no additional rolling mills have been constructed during the year, yet extensive improvements have been made at all points. These changes consist chiefly of improved appliances for handling raw materials, the rearrangement of equipment to minimize the necessity for rehandling products, displacement of old wooden buildings by modern steel construction, additional power by the installation of modern engines, boilers and other equipment. The effect of these changes has been to increase the tonnage and decrease the costs.

In the more highly finished factory products, extensions have been made to the Chicago plant by the construction of bolt and nut works. Substantial additions were also made to the railroad spike department at Youngstown, and general extensions of the Muncie bolt and nut works, which included the removal of the turnbuckle factory from Brazil to Muncie, which involved the reconstruction of this factory on a more modern basis and with increased capacity. The general influence of the changes made during the year has been concentration of production at the most favorable locations in respect to markets, fuel and raw materials, and to increase production at most advantageous points.

#### Blast Furnaces.

The increased blast furnace capacity recommended by the Executive Committee was attained by the completion and blowing in of Haselton Furnaces Nos. 2 and 3, which were added to the producing list in October, 1906, and January, 1907, respectively. Extensive improvements have been made to the Pioneer group of furnaces, South, and to the Atlantic Furnace, North, and all other northern stacks have been relined and thoroughly repaired during the year, with the exception of Hannah Furnace, which after four years of activity is now out of blast for relining and repairs. This stack, however, will be again in the producing list within 30 days.

Aside from the increased capacity attained by new construction, the old furnaces, due to renewals and improvements, are showing increased output and increased economy of operation. So far as pig iron is concerned, the property is now entirely self-contained as to its supply of steel making irons, and is in a position to market a substantial tonnage of basic, foundry and mill iron. The estimated furnace capacity is now figured as follows per annum: Northern District, 650,000 gross tons; Southern District, 250,000 tons.

The pig iron production for the year ending June 30, 1907, was 614,954 gross tons; 1906, 493,344 tons; 1905, 442,640 tons.

#### Steel Works.

The benefits anticipated from the steel works improvements, referred to in the last annual report, have been fully realized, both as to increases in tonnage and increased economy. The hot metal railroad and mixer equipment were placed in commission in October, 1906. Further minor improvements in the way of modern electric cranes, improved tables, additional steam and electric power, have been installed, which, together with some rearrangement of the equipment, have placed the property on a stronger operating basis. Comparative figures of production for the past three years are as follows:

| Year ending--      | Rails, sheet bars, Ingots, slabs and billets. |             |
|--------------------|---|-------------|
|                    | Gross tons.                                   | Gross tons. |
| June 30, 1907..... | 546,645                                       | 488,251     |
| June 30, 1906..... | 511,768                                       | 454,859     |
| June 30, 1905..... | 448,331                                       | 405,177     |

#### Iron Ore Mines.

Active operations have been conducted in the Northern iron ore lands, both as to explorations and development, and some additional properties have been acquired by purchase. The most notable extension to the mineral reserves North has been secured at a nominal drilling cost, by redrilling lands heretofore partially explored without result. Over 7,000,000 tons, largely Bessemer in



quality, have been added from this source and further drilling is confidently expected to increase this tonnage.

In the Southern District new mines are being developed in Red Mountain territory and active test-pitting has been prosecuted with the result of extending the life of the brown ore operations, and in addition to this development of old properties, a most valuable addition—both in respect to quantity and quality—has been made to the mineral holdings South, by a joint purchase with the Tennessee Coal, Iron & Railroad Company, on a long time payment basis and at a most favorable price, of the property known as the Potter land. The ore in this property is of the highest grade of Southern red ore, and, running high in lime, is of a self-fluxing character. This feature adds great strength to the Southern furnace operations for the reason that heretofore the furnaces South have been at some disadvantage on account of their necessity of working a higher silicon mixture than will be necessary hereafter when the new mines on the Potter land are placed on the producing list, which it is anticipated will occur on or before January 1, 1908. The tonnage acquired through the Potter interest is estimated at 40,000,000 tons.

The change in the mineral reserves may be approximately shown by the following comparative table:

|  | June 30, '07.<br>Tons. | June 30, '06.<br>Tons. |
|--|------------------------|------------------------|
| Northern District, Bessemer and non-Bessemer ..... | 31,556,500             | 22,870,755             |
| Southern District, non-Bessemer.....               | 89,041,800             | 49,041,800             |
| Totals.....  | 120,598,300            | 71,912,555             |

The ore production during the year was seriously interrupted by the large amount of reconstruction work at the mines, and also on account of scarcity of miners. The mines are now in good condition, and an increased output is looked for next year from the old mines and from a number of new operations, which will be placed on the producing list, so that hereafter the iron ore production will more nearly place the company in a self-contained position as to its ore supply. The production for the year ending June 30, 1907, was 947,069 gross tons; 1906, 970,106 tons; 1905, 794,167 tons.

#### Coal Properties.

The work of construction and development of the Pennsylvania property at Republic Station has been substantially completed and the Republic mine is now producing sufficient coal to operate 300 beehive ovens. The total number of ovens, however, authorized for construction, was 475; of this number 400 are completed and ready for operation and will be placed on the active producing list as rapidly as the mine output can be increased. The remaining ovens necessary to complete the number authorized are now being built and will be completed as rapidly as possible.

At the Atcheson Works, Gans, Pa., a coal washing experiment is being conducted with a view of determining whether this coal can be made available for the Northern furnace operations. This coal, without washing, has been found to be too high in sulphur for Bessemer use, but a ready market has been found for the product of the Atcheson plant for other purposes. The Southern mines have been very generally reconstructed, electrical haulage and other improved devices having been installed, which has resulted in increased output and decreased cost. Substantially all coal mined from the properties is coked either for the market or for blast furnace use. The coke production for the year ending June 30, 1907, was 521,561 tons; 1906, 343,485 tons; 1905, 256,264 tons.

Coking capacity is as follows:

|                        | Number<br>of ovens.                | Tons<br>per annum. |
|------------------------|------------------------------------|--------------------|
| Northern District..... | Gans .....138<br>Republic .....400 | 322,800            |
| Southern District..... | Thomas .....910<br>Warner .....100 | 606,000            |
| Totals.....            | 1,010                              | 928,800            |

No additional coal territory has been acquired during the year, so that the coal reserves, allowing for depletion

of minerals or coal mined during the year, is substantially unchanged, as follows:

|                        | Coking coal.<br>Tons. | Steam coal.<br>Tons. |
|------------------------|-----------------------|----------------------|
| Northern District..... | 13,612,100            | 12,500,000           |
| Southern District..... | 92,338,800            | 81,203,400           |
| Totals.....            | 105,950,900           | 93,703,400           |
| Grand total.....       |                       | 199,654,300          |

#### Properties and Products.

Manufactured products consist of merchant bar iron and steel, light structural shapes, standard spikes, bolts, nuts, drawn or polished shafting, turnbuckles, standard section steel rails, sheet and tin bar, skelp, slabs, billets and pig iron, and the properties are as follows:

##### Rolling Mills and Factories.

Inland Works, East Chicago, Ind.  
Corns Works, Massillon, Ohio.  
Brown-Bonnell Works, Youngstown, Ohio.  
Mahoning Valley Works, Youngstown, Ohio.  
Youngstown Steel Works, Youngstown, Ohio.  
Birmingham Works, Birmingham, Ala.  
Toledo Works, Toledo, Ohio.  
Sylvan Works, Moline, Ill.  
Tudor Works, East St. Louis, Ill.  
Indiana Works, Muncie, Ind.  
Alabama Works, Gate City, Ala.  
Shafting Works, Youngstown, Ohio.

##### Blast Furnaces.

|  | Number<br>of stacks. |
|--|----------------------|
| Haselton Furnaces, Youngstown, Ohio..... | 3                    |
| Hannah Furnaces, Youngstown, Ohio.....   | 1                    |
| Hall Furnaces, Sharon, Pa.....           | 1                    |
| Atlantic Furnaces, New Castle, Pa.....   | 1                    |
| Pioneer Furnaces, Thomas, Ala.....       | 3                    |
| Total.....                               | 9                    |

In addition to properties directly operated, substantial interests are also held in the following named properties, which are operated in connection with other properties listed: Potter Ore Company, Mahoning Ore & Steel Company, Union Ore Company, Antoine Ore Company, Lake Erie Limestone Company, Union Dock Company, Mahoning & Shenango Dock Company, Cambria Steamship Company, French Transportation Company, Sharon Connecting Railway, General Water Company. The interest in the Croton Limestone & Brick Company was disposed of during the year by order of the Executive Committee, as the property was of no advantage to the company's operations.

#### Labor and Employment.

The year ending June 30, 1907, notwithstanding it was one of marked industrial activity, was devoid of labor disturbances, except for a few minor differences of a local character. The average number of men employed in the North was 10,679; South, 3216; total, 13,895. The total expended for labor was \$8,686,604.58.

#### Unfilled Orders.

While the last annual report established a high mark in respect to tonnage of unfilled orders on hand, it is gratifying to say, that present figures showing balance on hand June 30, 1907, indicate totals substantially in excess of the previous best years showing. A comparison of totals on hand for the past three years is as follows:

##### Finished and Semifinished Product.

|                    | Tons.   |
|--------------------|---------|
| June 30, 1907..... | 448,627 |
| June 30, 1906..... | 377,349 |
| June 30, 1905..... | 279,944 |

No less gratifying is the tonnage of unfilled pig iron orders, comparative figures for which are:

##### Pig Iron.

|                    | Tons.  |
|--------------------|--------|
| June 30, 1907..... | 74,500 |
| June 30, 1906..... | 74,007 |
| June 30, 1905..... | 20,861 |

While the current demand is not as pressing as it was during the early part of the year, yet the volume of new business booked since July 1, 1907, has been up to maximum producing capacity. The outlook therefore for future operations is encouraging.

The new Russian battleship Emperor Paul, the first of the 17,000-ton ships, was launched at Cronstadt, September 7. It will cost when completed \$8,500,000.



## Electric Power in the Coal and Coke Industry.

BY W. B. SPELLMIRE, PITTSBURGH, PA.

The total annual capacity for the production of pig iron by the United States Steel Corporation at the present time is about 25,000,000 tons. This enormous production makes the company a correspondingly large consumer of coke. With the exception of a comparatively small percentage all the coke which is used is supplied by its subsidiary companies, the two principal ones being the H. C. Frick Coke Company and the United States Coal & Coke Company. The mines and works of the former are located in Pennsylvania in the Connellsville District, largely comprising Fayette and Westmoreland Counties; those of the United States Coal & Coke Company at Gary, McDowell County, West Va. The H. C. Frick Coke Company at present owns about 70 coal mines, each having its own set of coke ovens. The number of ovens at each mine ranges from approximately 100 to 800, depending upon the output of the mine and other conditions. These are located close to the openings to the mines and conveniently arranged in relation to railroad sidings. The coke ovens are, with few exceptions, of the beehive type, into which the coal is introduced at the top. The residual heat and that of the adjoining ovens starts the coking process, in which the volatile portion of the coal is driven off, and after this is completed the bed of coke is raked out at the bottom and loaded into cars for shipment.

The continued increase in furnace capacity of the Steel Corporation calls for a corresponding increase in coke production. It is estimated that the new furnaces under construction will add at least 2,000,000 tons to the present pig iron producing capacity. This will necessitate between 6000 and 7000 more coke ovens with the necessary additional mining capacity and machinery equipment. Similar conditions prevail in respect to independent furnaces.

### The Power Used in Coal Mining.

In coal mining, power is used for operating locomotives, pumps, large ventilating fans and hoists, and modern practice favors electric motors for these requirements. From the mine the coal is carried to a tippie, whence it is discharged into what are known as coke oven larries. These are small steel cars equipped with electric motors for propulsion and supplied with chutes for discharging the coal into the ovens. It is customary to arrange the ovens on either side of the track on which the larry runs; coal being discharged from both sides. The electric motors on the larries are small railway type machines. Electrically operated drawing machines are used for removing the coke from the ovens. The machine draws the coke out of the oven by a scraper, discharging it on a conveying belt whence it is dumped directly into freight cars. Two motors are used on this machine; one is of the series wound railway type and the other a shunt wound constant speed motor.

The operations of the H. C. Frick Coke Company at its Yorkrun plant are of special interest on account of modern features. Of the ovens here 100 are specially selected and so connected by flues as to conduct the hot gases from the ovens to the boiler house. The heat discharged from the coke ovens represents an enormous waste, and its use under the boilers therefore saves the use of a corresponding quantity of coal to produce the same heat. It is roughly estimated that the heat developed by each oven is the equivalent continuously of 18 hp. The complete electrical machinery of the power house and all the substations was built by the Allis-Chalmers Company.

### The Yorkrun Power House.

The power house contains four alternating current generators rated 400 kw., 2300 volt, 3 phase, 25 cycles. The equipment is complete with motor and engine-driven exciters. In the main power house is located a rotary converter substation supplied with two 200-kw. rotary

converters and six 75-kw. step-down transformers. The rotary converters supply direct current at 600 volts for haulage locomotives and coke oven larries at the Yorkrun mine. Alternating current is used for pumps, mine fans, hoists and scrapers. Within a radius of between two and three miles there are located at various points four additional rotary converter substations, each equipped with one 200-kw. rotary converter, and three 75-kw. step-down transformers. These substations are located so as to supply both alternating and direct current for mining and coking operations required by one or more mines.

Additional mining and coking operations can be supplied from this same power house by running additional high tension lines. Instances arise, however, where this is not practicable. Where locations are too remote, or when intervening property cannot be traversed by high tension lines, it becomes necessary to install separate isolated plants. A number of such plants are now being installed to meet the increased demand for coke. At the Phillips mines two 100-kw. direct-current railway type generators are being installed; at the Ronco mines two 200-kw. generators, and at the Dearth Mines two 200-kw. generators. All of this electrical equipment is being supplied by the Allis-Chalmers Company.

### Other Power Houses.

The power house of the United States Coal & Coke Company at Gary, W. Va., is equipped with two 24 and 42 x 42 in. cross-compound heavy duty Allis-Chalmers Corliss engines driving 750-kw. 6600-volt generators. In substations there is a total of 27 75-kw. Allis-Chalmers transformers used for rotary converters. The general lay-out of this plant is similar to that of the H. C. Frick Coke Company at Yorkrun except that waste heat from the ovens is not used.

At the present time the Allis-Chalmers Company is installing for the Woodward Iron Company at Woodward, Ala., complete high tension machinery for its coal mining operations. The power house is being provided with four 400-kw. engine type alternators. The current is generated at 3300 volts, 3 phase, 25 cycles and transmitted at this voltage to the substations which in this instance are located underground in the mine. These substations contain one 200-kw. rotary converter and three 75-kw. transformers.

The Ellsworth Coal Company, Ellsworth, Pa., which has recently been acquired by the Lackawanna Steel Company, is arranged for the installation of a large alternating current central station for distributing power. Owing to special conditions at this plant the purchasers have installed rotary converters running as belted generators; ultimately these machines can be used as rotaries receiving alternating current from the central station. At the present time an Allis-Chalmers 500-kw. railway type rotary is supplying power to two of the mines on this property. At one of the more remote mines an Allis-Chalmers Reliance Corliss engine is driving a 500-kw. generator.

"On the Art of Cutting Metals," by Frederick W. Taylor, which was the presidential address presented at the last annual meeting of the American Society of Mechanical Engineers, has been reprinted and bound in cloth by the secretary. The price per copy is \$3. This or any other publication of the society may be had by addressing the secretary, 29 West Thirty-ninth street, New York. It is not necessary to send orders through members. None of the publications of the American Society of Mechanical Engineers is copyrighted.

The McClintic-Marshall Construction Company, with works at Pittsburgh, Carnegie and Pottstown, Pa., has received a contract for a number of buildings at the new open hearth plant now being built by the Pittsburgh Steel Company, at Monessen, Pa. This contract includes a rolling mill building, 162 x 610 ft.; a boiler house, 46 x 382 ft.; a pit furnace building, 90 x 325 ft.; a skull cracker building and a yard crane runway, 100ft. span by 240 ft. long. These will all be of steel construction, requiring nearly 3000 tons of steel.

## The Buck's Company Boycott.

The following article, by Henry Harrison Lewis, is reprinted from *American Industries*, published by the National Manufacturers' Company, 170 Broadway, New York:

At no previous period in the long history of unfortunate and generally unreasonable antagonism between employers and employees—both workingmen in the true meaning of the word—has a more important step been taken to establish peace between these factions than the filing at Washington, August 20, 1907, of the Buck's Stove & Range Company's application for an injunction against the American Federation of Labor.

In this action rest all the elements of decisive and epoch making legislation which ultimately will re-establish harmony and mutual good will among the industrial classes of the country, however it may for the moment arouse strife. It is reasonably well known that what might be called labor antagonism has reached the point where honorably conducted and long established firms engaged in legitimate business enterprises are daily exposed to hostile methods which may spell ruin, not only to the employer, but to him who is employed. Conditions to-day are such that no business enterprise dares anticipate a prosperous future or even lay out manufacturing schedules extending beyond a month's time. To-day we, as business people leading the world in the extent of our commercial growth, find it necessary to confront an evil which aims at the very root of our prosperity.

Our material and civic life depend upon the relationship between employer and employee. This relationship should be harmonious and satisfying to both sides. There should be mutual confidence and mutual interests. It is a vital mistake to call one side capital and the other side labor. We are all laborers, all employees. The man who works for another man, receiving from him wage, is no more an employee in the true sense of the term than the manufacturer, for instance, who, hiring men, is himself the servant of his duty to his family and to his position in life. In treating of this subject we must clearly understand that fundamental principle.

There is no more clearly established fact in American industrial conditions than that the workman of yesterday is the employer of to-day, and this economic phenomenon shall last while America is free.

Our personal and national prosperity rests almost entirely upon the relation between those who labor in the shop and those who work at the proprietor's desk. When the man who works in the shop feels that he is not receiving due consideration or is being treated improperly, it is not only his right, but his duty to discuss this condition with that other man who sits at the proprietor's desk. It is this belief which has made the word "arbitration" so strong in our commercial vocabulary and which has given birth to innumerable mutual agreements existing between men in the business world. There is no question that any deviation from this idea is wrong, and there is also no question that the condition now confronting the Buck's Stove & Range Company—a condition materially affecting its future prosperity—presents a striking example of the evils resulting from an attempt on the part of misguided unionism to harm, without a clearly defined reason, a long established and highly esteemed commercial enterprise.

### The Case of the Buck's Company.

The facts in the case have been clearly presented to the public through the medium of the press. Briefly, they are as follows:

The Buck's Stove & Range Company of St. Louis, which conducts an open shop, employing both union and nonunion men without discrimination, has an agreement with the Iron Molders' Union of North America by which the relations of the employers and employees are regulated. This agreement has been in effect for about 14 years, and under it all its grievances are adjusted or referred to a competent committee, whose decision is supposed to be final and binding upon each party for a period of one year.

Notwithstanding the existence of this agreement, on

August 29, 1906, without previous notice, the members of Metal Polishers' Union, No. 13, St. Louis, in the employ of the Buck's Stove & Range Company, struck in a body, and without notice to or conference with the company or waiting for an adjustment of grievances. This was in direct violation of an agreement between the International Union of Metal Polishers and the Stove Founders' National Defense Association, of which the Buck's Stove & Range Company is a member, and under which all difficulties had for 14 years been successfully adjusted by a Conference Committee. It is well thoroughly to understand the above in judging the gross wrong which has been perpetrated upon a legitimate American commercial enterprise.

According to facts in the possession of the Buck's Stove & Range Company, the only grievance alleged by the aforesaid unions was connected with the question of a 9 or 10 hr. day. One peculiar point is that the metal polishers involved in the strike worked at piece rates and therefore took the peculiar attitude of refusing to earn more money. In other words, the unions insisted not only that a man should not earn additional money, but also that each man's output should be limited, his earning power contracted and the company's output restricted.

### The Beginning of the Boycott.

Confronted by this extraordinary attitude of the union the Buck's Stove & Range Company gave the only natural decision in its power—a refusal to accede to the demands of the employees. A strike followed. The men remained out and picketed the plant, but without satisfactory results, as a supply of nonunion men was easily secured; in fact, some of the strikers returning to work.

Now comes the crucial point in the case. The International Union Metal Polishers declared a boycott against the Buck's Stove & Range Company and its products, inserted the company's name in its unfair list and published the company's name in the union paper, the *Journal*. The local Union No. 13 also joined in the boycott and procured its indorsement of the Central Trades and Labor Union of St. Louis and the Metal Trades Council, also of St. Louis, both subordinate unions of the American Federation of Labor.

It was now that the intricate machinery of oppression owned by the American Federation of Labor began to move, a systematic plan of campaign leading to the possible ruining of the Buck's Stove & Range Company being developed. November, 1906, barely two months after the declaration of the strike, at the annual convention of the American Federation of Labor in Indianapolis, the products of the Buck's Stove & Range Company were placed on the "We-Don't-Patronize" list of the Federation and also in a list published in *American Federationist* in the June and July, 1907, issues. Besides this, various notices to union men were sent out by the union interests to aid the boycott.

A circular was addressed to "Organized Labor and Friends" from the Metal Polishers' Union of St. Louis, stating that union polishers at the Buck's Stove & Range Company were compelled to strike because the management insisted on their return from the 9 hr. to the 10 hr. day. The circular adds:

In the month of June, 1904, the members of the above named union employed at the Buck's Stove & Range Company secured the nine-hour workday. After working the nine-hour day for 18 months a notice was published in the polishing department notifying the men that on and after January 1 said department would run 10 hours a day. When the men returned to work after said date they immediately notified the firm that they would work the 10-hour day under protest or until such time as our International Union and the Stove Founders' National Defense Association, with whom we have a national agreement, could agree upon a settlement; and after several conferences had been held and being unable to arrive at a settlement the above action was taken.

### Mendacity a Part of the Campaign.

In this particular action of the union is found the ease with which certain union leaders distort the truth in their efforts to make a strong case against any industrial concern incurring their displeasure, it being denied by the Buck's Company under oath that the strikers held any conference whatever with the officers of the company. According to President Van Cleave of the Buck's



Stove & Range Company, no investigation was made nor had he been asked by anybody representing the American Federation of Labor as to any facts in the case. In the statement made in the circular above quoted to the effect that an attempt had been made by the company to restore the 10 hr. schedule in the factory after a 9 hr. one had been in effect for 18 months, the union organ deliberately falsified the facts. The 10-hr. schedule had been in effect continuously in all branches of the factory.

Another instance of the deliberate disregard of the truth is shown in the resolution adopted by the convention of the Federation charging that Mr. Van Cleave "has persistently discriminated against members of the Foundry Employees' Union to the extent of discharging every man as soon as it became known that he was a member of the union." Mr. Van Cleave declares in the complaint that the company had never employed any member of that union; that he never before heard of it and that no discrimination has been made. The published statement of the Federation said also that the stove company had been declared "unfair" at the request of the Brotherhood of Foundry Employees "after due investigation and attempt at settlement," which is also emphatically denied by the stove company.

#### The American Federation of Labor.

This brief history of the boycott is given merely to enable the reader to understand upon what trifling causes are based the attacks of the American Federation of Labor. The facts have been described at length in the public press, and it is the purpose of this article merely to illustrate the workings of the "unfair" boycotting machinery systematically employed by the federation.

It is generally known that the American Federation of Labor is a voluntary association with a membership exceeding 2,000,000 of persons and that Samuel Gompers is president; Frank Morrison, secretary, and J. B. Lennon, treasurer. The Executive Council of the American Federation of Labor consists of eight members. The federation is subdivided into numerous subordinate groups, combinations and associations of unions, so-called, under names indicating generally the trade or occupation of the members and holding certificates of affiliation with the membership of said American Federation of Labor. The executive offices of the federation are located in Washington. Its revenues are derived from a per capita tax levied on all its members.

The federation was formed in 1886 by Samuel Gompers and other persons associated with him, for the express purpose, as declared in its first constitution or written articles of agreement and association, of securing the unification of all labor organizations in aid of boycotts declared by any of them against the business of individuals or concerns. It has since remained the duty of its Executive Council to secure such unified action by its members and their sympathizers in carrying out such boycotts; to bring to bear all the power of the association through combination of that purpose; to injure thereby the business of such individuals and concerns, and to restrain and destroy their interstate trade and commerce with their customers in other States unless they shall yield to its demands in the direction and conduct of their business.

#### Injuring Legitimate Business.

During the 20 years of its existence it has repeatedly declared boycotts and has actively prosecuted them by using the combined power of the association for that purpose. It has widely published and proclaimed the fact in order to add to the effectiveness of such attack upon others. The destructiveness of these attacks upon the business of any person "under its ban," as it is said in the reports of its Executive Council, is well known to the public generally. It is only natural that this knowledge should add greatly to the power of the boycott, which is now maliciously directed against the business of the Buck's Stove & Range Company.

That the oppression point of view is recognized and followed by the federation is clearly indicated in the following report and recommendation made by the Federa-

tion Committee on Boycotts at the convention held at Pittsburgh, November 20, 1905:

We must recognize the fact that a boycott means war, and to successfully carry on a war we must adopt the tactics that history has shown are most successful in war. The greatest master of war has said that "War was the trade of a barbarian, and that the secret of success was to concentrate all your forces upon one point of the enemy, the weakest if possible." In view of these facts the committee recommends that the State federations and central bodies lay aside minor grievances and concentrate their efforts and energies upon the least number of unfair parties or places in their jurisdiction. One would be preferable. If every available means at the command of the State federations and central bodies were concentrated upon one such, and kept up until successful, the next on the list would be more easily brought to terms and within a reasonable time none opposed to fair wages, conditions or hours but would be brought to see the error of their ways and submit to the inevitable. Under the present system, our efforts are largely wasted and our ammunition scattered. Let us reduce the boycotts to the lowest possible number and concentrate our efforts upon those, and we feel certain better results will be obtained.

#### The "We-Don't-Patronize" List.

It does not seem necessary to give further instances to prove the undoubted fact that the American Federation of Labor is organized to declare war against any commercial enterprise refusing to accede to its demands. If such proofs are necessary they can be found in the system upon which the federation conducts its attacks. An important part of the system is the use of certain publications having a very wide circulation and in which are published the lists graphically termed "unfair" and "We-Don't-Patronize." The principal publication issued by the federation is the monthly journal, the *American Federationist*. This is the official organ and mouthpiece of Samuel Gompers, who is its duly authorized editor.

There are other journals of minor importance owned by the association, but the mainspring of publicity is the *American Federationist*. In each copy of this magazine there appears a notice to all of the unions and members that particular concerns, who from the application of particular unions named, and after due investigation and attempt at settlement, have been declared "unfair" by the Executive Council, and requesting the secretaries of its 27,000 local unions to read such notice at the meetings of the unions and requesting the local and reform press of the country to copy it. These notices are signed by Samuel Gompers as president of the federation in behalf of it and all its members. In each monthly issue of the *American Federationist* appears under the heading "We-Don't-Patronize," an official list of individuals and concerns which in previous issues have been declared "unfair," which are to be boycotted.

The use of this particular branch of the federation's militant system seems simple enough, but its effect can clearly be understood by recalling the many instances in which the "unfair" boycotting system of the American Federation of Labor has injured legitimate American industrial enterprises.

A great many people have long felt that such methods as these, which have been devised not only to interfere with individual liberty, but to attack, to oppress and to injure, were not only unjust and immoral, but illegal. It has not seemed clear that there was any moral difference between this kind of a conspiracy to ruin a corporation or an individual, and a conspiracy to injure in any other way. By the pending action a legal decision will be rendered in due time determining to the public satisfaction whether or not what is known by all right thinking men to be wrong under the moral law is also in general in violation of the statutes.

#### Condemning the Black List.

The countercharge having been made that manufacturers' associations prepare black lists, therefore conspiring to keep certain men out of employment, Mr. Van Cleave, who is also president of the National Association of Manufacturers, made an affidavit, August 23, 1907, in which he says: "In every instance in which I have heard the blacklist mentioned by members of the National Association of Manufacturers, or by employers of any sort or in any place, it was condemned as a cowardly oppression of the weak by the strong. For this practice no defense, no apology, has ever been offered, or ever can be offered,



which is worth a moment's consideration. To this statement there are no exceptions, no reservations, no limitations. The question of the blacklist has only one side, and that side is base." This shows that he is consistent in the position he has taken.

### The Ryerson Friction Saw.

In the fabrication of steel shapes for construction work the cold cutting of material is an important part in the work done. With a view to facilitating such work in their own shops and to supply an efficient, economical and inexpensive tool to install, Joseph T. Ryerson & Son, Chicago, have placed on the market the Ryerson friction saw, herewith illustrated. This machine, though designed primarily for cutting structural shapes, can be used advantageously in sawing rails or other special sections, but it is not recommended for cutting large square or round sections.

The saw disk, made of ordinary flange steel plate, is 44 in. in diameter and is guarded by a strong steel hood bolted to the bed plate by angle braces. The blade is motor driven, being mounted on an extension of the motor shaft, and is reinforced and rigidly held by steel plates clamped on either side that extend to within 8½ in. of its edge. The serrations of the blade are simple fish tail nicks, which are easily renicked with a special chisel furnished with the machine.

The motor and blade are mounted on a movable table having longitudinal guide rails underneath on which it is carried back and forth over grooved rollers set in channel

the bed plate, bolt holes are provided for other clamps to secure work in irregular positions. A feature of particular importance is noted in the fact that the cutting table will accommodate the placing of small beams and other shapes in position to be bevel cut or mitered at any desired angle. No adjustment is required for pieces of different size, and the cutting of a 15-in. beam—the largest within the capacity of the machine illustrated—may

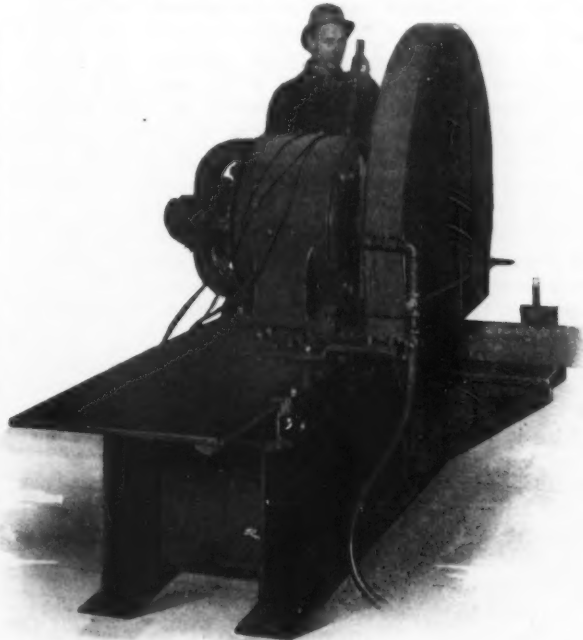


Fig. 2.—Rear View of the Ryerson Friction Saw.

be followed by one of any smaller size without any change in adjustment or equipment.

With reference to its working speed, it is stated a cut through a 15-in. beam can be made in 28 sec. The simplicity of its construction, together with its self-contained design, leaves small room for friction losses in power transmission or disordered parts. The floor space occupied by the complete machine is approximately 4 x 7 ft., and its weight is about 4500 lb.

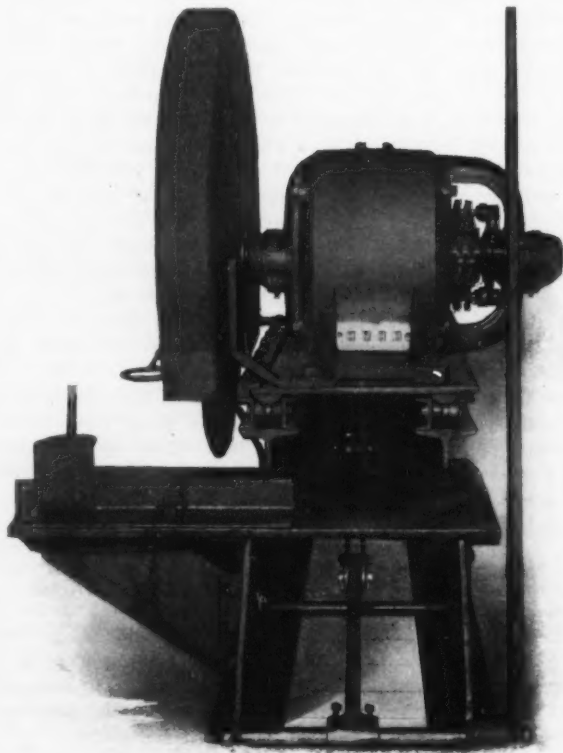


Fig. 1.—The New Motor Driven Friction Saw Built by Joseph T. Ryerson & Son, Chicago.

frames. The entire mechanism, together with the bench table provided to hold the work, is mounted on a heavy steel structural frame, so that the machine requires no other foundation than a solid floor. Water for lubricating and cooling the blade is introduced through a perforated pipe extending around the inside periphery of the hood and is controlled by a valve through a rod extending within easy reach of the operator.

In its operation the machine is extremely simple. The table carrying the saw is moved forward to bring the blade in contact with the work by means of a long hand lever. Owing to the high peripheral speed at which the saw is run—its maximum being 1700 rev. per min.—it is unnecessary when making straight cuts to clamp the work to the table. In addition to the angle clamp attached to

A party of distinguished Germans inspected the plant of the General Electric Company at Schenectady, N. Y., September 5 and the guests were entertained by the company officials. The visitors were designated by the German Government as a commission to inspect the electric railroads and high tension transmission systems of this country and Mexico. Numbered among the party were Privy Councillor Wittfeld of the Prussian Government, Prof. Dr. W. Reichel of the Royal Technical University, Berlin; Director Frishmut of the Siemens-Schukert Works, Mr. Pforr of the A. E. G. Railway Department, Director A. Elfes of the A. E. G. Brunnenstr. Director Jordan of the Lahmeyer Works. The reception committee of the General Electric Company consisted of E. W. Rice, Jr., vice-president; J. R. Lovejoy, vice-president; G. E. Emmons, general manager; E. B. Raymond, general superintendent; Wm. S. Hulse, A. E. G. representative; M. A. Oudin, associate manager foreign department; W. B. Potter, engineer railway department; D. B. Rushmore, engineer P. and M. department; J. E. Noeggerath, engineer; Eugene Eichel, consulting engineer. The commissioners were amazed at the size of the works and the extent of the electrical operation in progress in the various shops.

A Cleveland firm of engineers has just been engaged to prepare plans for a steel plant that will be erected by the Schoen Steel Wheel Company, McKees Rocks, Pa. The company will erect four 30-ton open hearth basic furnaces, and when the plant is completed will make its own steel slabs instead of buying them on the market. The plant will be run in connection with the wheel plant. The new plant will adjoin that of the Pressed Steel Car Company. The erection of the furnaces will be started at once.

## Canada and Reciprocity.

### The French Treaty.

TORONTO, September 7, 1907.—Mr. Fielding, the Canadian Finance Minister, has completed the business that he was engaged in abroad, and is about to start for home. He will bring with him the draft of a new commercial treaty with France, which is the resultant of the give and take negotiations that occupied most of his time in Paris. Action by the Parliament of Canada and of the French Chambers is necessary to establish the treaty, which must also have the assent of the Imperial Government. The existing commercial treaty between France and Canada came into effect in 1894. It secures to Canada the advantages of the French minimum tariff on a number of articles, and provides for the admission into Canada of certain French products at specially low duties. Nonsparkling wines, soaps, nuts, almonds, prunes and plums are the French products designated. France also is entitled to the most favored nation treaty privileges given by Canada to any country outside the British Empire.

In the new treaty it is understood that a more liberal basis of exchange has been reached. Whether the abatement of duty on given articles is or is not greater, the articles in respect to which agreement has been reached are said to be more numerous. It was supposed that the new intermediate tariff of Canada would be the standard of the Ottawa Government's concession in commercial treaties, but correspondents who claim to be informed have stated rather confidently in cablegrams that the rates of duty on some of the French articles specified in the new treaty are considerably lower than the intermediate duties. No mention has so far been published of concessions made on products of iron or steel. Under the existing tariff the minimum French duties are allowed to the following Canadian articles: Canned meats, pure condensed milk, fresh water fish, eels, fish preserved in their natural form, lobsters and cray fish so preserved, apples and pears, whether fresh or dried; other preserved fruits, building timber, wood paving, staves, wood pulp, tanning extracts, common paper, prepared skins, boots and shoes, furniture of common wood, flooring in pine or other soft wood, and wooden seagoing ships.

### Negotiating with Germany.

Progress, according to unofficial reports, is being made in negotiations for a treaty of commerce between Canada and Germany. Trade between these two countries has greatly shrunk as a consequence of the tariff war that has been going on between them for years. When the Laurier Government revised the duties in 1897 it adopted what it called the reciprocal tariff, for whose benefit all countries should be eligible who gave Canada at least equivalent treatment. The benefit in question was an abatement of 12½ per cent., afterward to be increased to 25 per cent., of the regular duty on nearly all dutiable articles. Great Britain was the one nation specifically named for this favor. Hardly had the concession to her been announced before it was claimed by Germany, who pointed out that under her commercial treaty with Britain, Canada being a party thereto, this country could not exclude Germany from any tariff privileges conceded to any other country, even though the other country were the United Kingdom. That contention was admitted by the British Government. Accordingly, the benefits of the Canadian reciprocal treaty of 1897 were extended to Germany. But the Canadian Government at once notified the British Government that it wished to withdraw from the German treaty. The British Government thereupon denounced the treaty, which at the close of another year came to an end. The German Government then took Canadian products off the list of articles importable at the duties of the conventional tariff, but continued the privilege of these duties to articles coming from the United Kingdom, with whom finally a new commercial treaty was completed, Canada being excluded. After some years of patience, the Canadian Government met Germany's retaliation with the 33-1-3 per cent. surtax. This proved a heavy blow to German trade here, and in recent years overtures have been made for a settlement

of the tariff conflict. When the Canadian intermediate tariff was adopted efforts with that object in view were recommenced, and it is now stated that they are approaching fruition, the report being that Germany is likely to have the privileges of Canada's intermediate tariff and Canada those of Germany's conventional tariff. Under such an arrangement Germany would be on a footing to sell steel and steel products in this market, a thing almost impossible now.

### H. M. Whitney in Toronto.

One of the visitors at the Canadian National Exhibition, which has been open the last fortnight in this city, was H. M. Whitney of Massachusetts, whose enterprise brought the Dominion Coal Company and the Dominion Iron & Steel Company into existence. He was one of its guests at a luncheon of the exhibition directors, and he made a short speech on his favorite subject, reciprocity between Canada and the United States. As some notice had been given that he proposed to speak in favor of such a trade policy, the president of the exhibition took the opportunity to say, by way of introduction of the speaker, that there was no longer a desire in this country for reciprocity with the United States. The president spoke with conviction, as he was a former president of the Canadian Manufacturers' Association. Mr. Whitney's remarks did not appear to make a strong impression on the large company of varied interests at the luncheon.

### Australia's Duties.

Australia's new tariff is not well received in this country. Premier Deakin having shown himself a thoroughgoing advocate of preference at the Imperial Conference of the early summer, it was expected that his then forthcoming tariff would have more or less fraternalism mingled with its paternalism. But it contains no preference for Canada, Britain alone being the beneficiary of the new tariff's preferential section. Some negotiations had passed between Ottawa and Melbourne, which were supposed to be leading toward reciprocity, but they came to nothing. To Canadian manufacturers of harvest machinery and bicycles the change in the Commonwealth's duties comes with some severity. They had built up a large trade in the Australian market—one that seemed likely to go on increasing if no barriers were raised. Barriers have now been raised, and they will close out Canadian products or render the sale of them in Australia much less profitable than it was. After the new tariff was announced the Canadian Manufacturers' Association requested that shipments from Canada en route when the changes came into effect be admitted at the old rates. Though backed by the Dominion Government, this request was denied.

C. A. C. J.

### Further Tests of Vanadium Steel.

The United Steel Company, Canton, Ohio, gives the following results of tests made on vanadium steel from a 30-ton heat poured at its plant. The steel was shipped to Detroit, and the tests were made of various portions of the steel subjected to differing heat treatments:

|             | Tensile strength.<br>Pounds per<br>square inch. | Elastic limit.<br>Pounds per<br>square inch. | Elongation.<br>Per cent. | Reduction<br>of area.<br>Per cent. |
|-------------|---|--|--------------------------|------------------------------------|
| B .....     | 147,750   | 140,000                                      | 15                       | 57                                 |
| C .....     | 152,500   | 145,000                                      | 15                       | 51                                 |
| D .....     | 152,500   | 145,000                                      | 15                       | 53                                 |
| Average.... | 150,917   | 143,333                                      | 15                       | 54                                 |
| No. 14..... | 163,750   | 157,000                                      | 15                       | 51                                 |
| No. 15..... | 168,750   | 162,500                                      | 15                       | 51                                 |
| No. 13..... | 170,000   | 165,000                                      | 15                       | 53                                 |
| Average.... | 167,500   | 161,667                                      | 15                       | 51.6                               |
| E .....     | 168,750   | 162,500                                      | 15                       | 51                                 |
| G .....     | 166,250   | 160,000                                      | 15                       | 53                                 |
| H .....     | 165,000   | 160,000                                      | 13                       | 46                                 |
| Average.... | 166,667   | 160,833                                      | 14.3                     | 50                                 |
| No. 6.....  | 186,250   | 185,000                                      | 9                        | 30                                 |
| No. 8.....  | 188,750   | 180,000                                      | 10                       | 30                                 |
| No. 9.....  | 186,250   | 180,000                                      | 10                       | 30                                 |
| Average.... | 187,083   | 181,667                                      | 9.6                      | 30                                 |



## The Customs Administrative Law.

### Important Amendments Planned.

WASHINGTON, D. C., September 10, 1907.—Although the Administration is in perfect agreement with the Senate and House leaders in their decision that no tariff legislation shall be attempted until after the next Presidential election, a vigorous movement is now being set on foot to bring about the amendment of the customs administrative act in accordance with the understanding reached between Secretary of State Root and the German Ambassador under the terms of which President Roosevelt is pledged "to recommend to the Congress the enactment of an amendment of Section 7" of the act of June 10, 1890. Several prominent members of the House, who have discussed the subject with administration officials, have expressed the opinion that the changes urged by the President will be promptly authorized by Congress. A bill drawn by the Treasury Department will, therefore, be introduced immediately after the organization of the new House of Representatives.

#### Changes Limited to Section 7.

In the hope of securing early action, the Administration will recommend no changes except in the provisions of Section 7 of the act. It is well understood, however, that other bills involving modifications of the act of 1890 will be brought forward, and it is expected that the opponents of the German-American reciprocity arrangement will have strength enough to make a vigorous demand for legislation depriving the Secretary of the Treasury of the power to accept export values on invoices of merchandise shipped to the United States. The Ways and Means Committee is relied upon, however, to support the Administration on this point, and as practically the entire minority of the House favors any measure tending toward tariff reduction, it is hardly possible that the critics of the Administration's new reciprocity policy will prove strong enough in Congress to incorporate undesirable amendments in the customs administrative laws.

The changes which the Administration will seek in Section 7 are of great importance, especially in view of the strong probability that they will be authorized early in the coming session. With a view to a clearer understanding of the proposed amendments the Treasury Department has prepared a draft of the section showing the portions intended to be stricken out and the new provisions which are to be inserted. This draft, which has not heretofore been published, is presented below, the words to be omitted being embraced in brackets, while the new provisions appear in italics:

#### Text of Amendments.

Sec. 7. That the owner, consignee or agent of any imported merchandise [which has been actually purchased] may, at the time when he shall make and verify his written entry of such merchandise, but not afterward, make such addition in the entry to *or such deductions from* the cost or value given in the invoice or pro forma invoice or statement in form of an invoice, which he shall produce with his entry, as in his opinion may raise *or lower* the same to the actual market value or wholesale price of such merchandise at the time of exportation to the United States, in the principal markets of the country from which the same has been imported: [but no such addition shall be made upon entry to the invoice value of any imported merchandise obtained otherwise than by actual purchase:] and the collector within whose district any merchandise may be imported or entered, whether the same has been actually purchased or procured otherwise than by purchase, shall cause the actual market value or wholesale price of such merchandise to be appraised; and if the appraised value of any article of imported merchandise subject to an ad valorem duty or to a duty based upon or regulated in any manner by the value thereof shall exceed the value declared in the entry *by more than 10 per centum* there shall be levied, collected and paid, in addition to the duties imposed by law on such merchandise, an additional duty of 1 per centum of the total appraised value thereof for each 1 per centum *in excess of 10 per centum* that such appraised value exceeds the value declared in the entry, but the additional duties shall only apply to the particular article or articles in each invoice that are so undervalued, *and shall not be imposed upon any article upon which the amount of duty imposed by law on account of the appraised value does not exceed the amount of duty that would be imposed if the appraised value did not exceed the entered value, and shall be limited to [50] 25 per centum of the appraised value of such article or articles.* Such additional duties shall [not] be construed to be penal, and *within the purview of sections 5292 and 5293, Revised Statutes,*

*and sections 17 and 18, act June 22, 1874, and further shall [not] be remitted, [nor payment thereof in any way avoided, except] in cases arising from [a] unintentional or manifest clerical error, [nor shall they be refunded] but these duties shall not be refunded in case of exportation of the merchandise [or on any other account,] nor shall they be subject to the benefit of drawback: Provided, That if the appraised value of any merchandise shall exceed the value declared in the entry by more than [50] 35 per centum, except when arising from an unintentional or a manifest clerical error, such entry shall be held to be presumptively fraudulent, and the collector of customs [shall] may seize such merchandise and proceed as in case of forfeiture for violation of the customs laws, and in any legal proceeding that may result from such seizure, the undervaluation as shown by the appraisal shall be presumptive evidence of fraud, and the burden of proof shall be on the claimant to rebut the same and forfeiture shall be adjudged unless he shall rebut such presumption of fraudulent intent by sufficient evidence. The forfeiture provided for in this section shall only apply to [the whole of the merchandise or the value thereof in the case or package containing] the particular article or articles [in each invoice] which are undervalued: Provided, further, That all additional duties, penalties or forfeitures applicable to merchandise entered by a duly certified invoice, shall be alike applicable to merchandise entered by a pro forma invoice, or statement in the form of an invoice, [and no forfeiture or disability of any kind, incurred under the provisions of this section, shall be remitted or mitigated by the Secretary of the Treasury.] The duty shall not, however, be assessed in any case upon an amount less than the [invoice or] entered value.*

#### Effect of the Changes.

The effect of the proposed changes may be briefly stated. They give to the owners of consigned merchandise the same privilege that is enjoyed by the consignees of purchased merchandise, namely, to add an entry to the invoice value in order to make market value. They permit a deduction from the invoice value of both consigned and purchased goods in order to make market value. They provide that additional duties are not to be levied within a margin of 10 per cent. Prima facie evidence of fraud is created where the merchandise is undervalued 35 per cent. instead of 50 per cent. as heretofore. Penal duties assessed for undervaluation will be treated as penalties and not as duties, thus giving the Secretary of the Treasury authority to remit such penalties when the fact is demonstrated that no fraud was attempted. Customs officials are prohibited from assessing penal duties on goods paying specific duties where the rate of duty is not changed as a result of the advance in value by the appraiser.

The Treasury officials anticipate opposition to the proposed amendment providing that duties assessed for undervaluation are to be treated as penalties and not duties, thus giving the Secretary of the Treasury authority to remit them in his discretion, but this is regarded as one of the most desirable of the projected changes. It often happens that additional duties are assessed and collected in cases where the importer has acted with the utmost good faith, but, although the Secretary of the Treasury may be convinced of this fact, he is expressly denied the right to take any remedial action. A hardship results which has been found to be demoralizing to importers as a class, as it puts a premium upon the successful evasion of duties by undervaluation and penalizes honest merchants who make entries in good faith. Reputable houses have been mulcted in large sums through the rendition of a decision by the appraiser or Board of General Appraisers after the shipment of the goods and before their arrival in this country, and in the present condition of the law neither the department nor the courts can grant relief. Inasmuch as a 35 per cent. undervaluation creates the presumption of fraud, according to the proposed amendments, instead of an error of 50 per cent., as in the present law, it is regarded as especially important that the Secretary of the Treasury should have the power to remit penalties.

W. L. C.

**The Stoeber Pipe Bending Machine.**—In the description of the automatic pipe bending machine made by the Stoeber Foundry & Mfg. Company, Myerstown, Pa., which appeared in *The Iron Age* September 5, 1907, the last paragraph mis-stated the radius of the bends made during tests of the machine's operating capacity. This should have read: "It has made 16 complete bends in 10 min., and a number of times in daily operation has made 300 bends in 9 hr.; these were 180-degree bends of 2-in. pipe made to a radius of 4-in. and having 5 or 6 ft. legs."



# THE IRON AGE

1855-1907.

New York, Thursday, September 12, 1907.

Entered at the New York Post Office, as Second Class Mail Matter.

|                            |   |   |   |   |   |                  |
|----------------------------|---|---|---|---|---|------------------|
| DAVID WILLIAMS COMPANY,    | - | - | - | - | - | PUBLISHER        |
| 14-16 PARK PLACE, NEW YORK |   |   |   |   |   |                  |
| DAVID WILLIAMS,            | - | - | - | - | - | PRESIDENT        |
| CHARLES KIRCHHOFF,         | - | - | - | - | - | VICE-PRESIDENT   |
| RICHARD R. WILLIAMS,       | - | - | - | - | - | TREASURER        |
| GEO. W. COPE,              | - | - | - | - | - | SECRETARY        |
| CHARLES KIRCHHOFF,         | - | - | - | - | - | } EDITORS.       |
| GEO. W. COPE,              | - | - | - | - | - |                  |
| A. L. FINDLEY,             | - | - | - | - | - |                  |
| RICHARD R. WILLIAMS,       | - | - | - | - | - |                  |
|                            |   |   |   |   |   | HARDWARE EDITOR. |

## The Pig Iron Outlook.

To what extent the readjustment now in progress in pig iron will go is a question to which producer and consumer are properly giving thought. That is the one department of the iron market on which by common consent the transition from the late superabundant prosperity to a condition of excess capacity would have most effect. The principal reason for thinking so doubtless is that pig iron prices advanced most under the urgings of good times. The steel billet trade, in spite of the persistent scarcity of semifinished steel, due to the pressure upon every important steel manufacturer to turn the largest possible percentage of his product into finished forms, shows nothing comparable to the sharp ascent of pig iron in the second half of 1906. Therefore, on the theory that what goes up must come down, there has been some speculation as to the position in which foundry pig iron, for example, will be found when the reactionary forces now known to be under way have reached their culmination.

A glance at the chart of prices which *The Iron Age* publishes each year shows that in the sharp uprush in 1899 Southern pig iron did not reach the height to which it was carried in the spring of this year, nor even the high point of the advance of 1902. On the other hand, Bessemer pig iron and Northern foundry iron went higher in 1899 than in 1902, and while Bessemer iron in 1899 mounted to the highest point for the past 20 years and more, Northern foundry iron as well as Southern made the highest price records for the three periods of expansion on the last rise. The following table shows how the high pig iron prices of the three periods compare, the highest monthly average being taken in each case:

|                                    | 1899.   | 1902.    | 1907.   |
|------------------------------------|---------|----------|---------|
| Bessemer iron, Pittsburgh.....     | \$24.90 | *\$22.15 | \$24.25 |
| No. 2 local foundry, Chicago.....  | 23.50   | *23.10   | 26.50   |
| Southern coke, No. 2, Cincinnati.. | 20.75   | 24.25    | 26.00   |

\* January, 1903.

Due to conditions quite well understood, the boom of 1899 carried finished material prices far beyond anything seen in 1902 or in 1906-1907, so that no parallel to recent conditions is to be found in that market. In the advances of last year it was evident that the pig iron market was more than ever a law to itself. Foundry iron, often spoken of as the freest of all iron products from any control as to prices, proved literally the most uncontrollable. With nothing but history to depend upon, it might be assumed from the table given above that the reaction from the highest average prices reached in the

three notable boom periods of the past decade would be marked. Thus far no indications have appeared that this will be the case.

It is customary to say broadly that supply and demand will control the question of price. But the relation between the two changes as conditions change. Just now furnacemen are viewing with no satisfaction the shrinkage of market prices for their product upon a thus far unyielding substratum which represents the cost of making pig iron. In other days it was usual to expect many furnaces to remain in blast after the market had crossed below their cost line. Furnacemen hoped for reductions in raw materials, or for the blowing out of other furnaces, or for a turn in the tide, and meantime kept at work and sold their product, even to the demoralization of the market, since bank obligations had to be met and operation seemed cheaper than idleness. To a very large extent the iron trade has outgrown this condition of its feebler days. Blast furnaces—such of them as are considered fit for economical production in average times—have been making such dividends in the past three years as should put them beyond the temptation of running at a loss if a depression should come severe enough to push the market below their cost line. The example set in 1904 by the large steel companies, of adjusting capacity to consumption rather than engage in a disastrous scramble for shrunken business, has not been lost upon merchant furnacemen. To-day, with ore prices firmly held on the basis of the early months of the year, there is little prospect for a readjustment of raw material costs. Even with some considerable ultimate falling off in the demand for iron and steel the supply of Lake Superior ore is not likely for months to come to be sufficient to cause a weakening in that market. With shipments of 24,341,552 tons up to September 1, if those of the balance of the season should be just equal to the total in 1906 after September 1 the season would end with 39,139,052 tons brought down by water, as against water shipments of 37,513,595 tons last year. But stockpiles have been largely moved already and mining operations since the strike have been on a smaller scale than last year's. The notifications of a shortage on ore contracts sent to some furnace companies are evidently based on accumulating evidence that the year's increase in ore shipments will not correspond with the increased rate of pig iron production. In 1904, when the recession from the boom of 1902 was near its ebb, lake ore prices were \$1.25 to \$1.50 below those of 1903 for Bessemer ores and about \$1 a ton less for non-Bessemer ores. But there is nothing in the present temper of ore sellers pointing to any like reduction, or any reduction at all for next year. However, that is a question that plainly will wait for some months. As far as coke is concerned, it is naturally quicker than iron ore to respond to changes in pig iron values, in view of the number of contracts based on pig iron; but here also anything radical is evidently some distance ahead.

To judge from current blast furnace statistics, the increased capacity that has been coming into line from month to month is not yet equal to the reductions in output due to furnaces blowing out. The strenuous campaign of the past 18 months is showing in a succession of stoppages, of which the end is not in sight. No stoppages due to declining prices are reported as yet, and stocks at furnaces are still so small as to be really negligible. The situation, in short, is one on which influences from without the iron trade must throw light in the near future, rather than any deductions that can be made from the so-called parallels of iron market history.

### Broad Tendencies in the Copper Markets.

For a number of years the copper industry has suffered from a close connection with speculation in mining stocks, and it has been frequently and freely charged that men responsible for the management of important mines have not hesitated to sacrifice the interests of the industry at large in order to promote their own personal gambling operations. They have been long or short both of the metal and the shares. Such operations cannot, of course, in the long run override the laws of demand and supply, but they have introduced many temporary periods of perplexity adverse to the best interests of the great consuming interests. It is probably too much to expect that the copper market will ever be free from this disorganizing factor, with whose great influence the manufacturer who converts copper must reckon. His only safety is to study the broader features controlling the demand and the supply and conduct his policy by them, undeterred by the temporary vagaries of the market. Possibly, ultimately, co-operative buying on a comprehensive scale may turn out the only salvation to those who would free themselves from the incubus of the speculators who manipulate the metal market for the sake of gambling, with loaded dice, in the stock market.

In the flood of news and of comment which is poured upon the public through stock exchange channels, some of them tainted, broader tendencies are lost sight of. First among these is the enormous expansion in the demand for electrical work all over the world. The copper trade has followed its development with keen interest, but there are very few connected with it who would have thought it possible only a few years ago that a range of prices above 18 cents per pound would not promptly check that demand. We know now that 20-cent copper maintained for a long time does not so greatly increase the cost of electrical installations that their advantages disappear. The enormous amount of work to be done in developing electrical traction, the telephone and the transmission of power marks a relatively high level for copper for many years to come, and makes the price practically independent of the cost of production.

In former days, when the demand for electrical purposes was not a great factor, the whole market could be supplied by mines whose cost was below 12 cents, delivered to the consumer, cost of construction included, and then the 15-cent level was a dangerous one. In fact, the effort only a few years ago to peg it at 17 cents by one of the most powerful interests resulted disastrously. The normal price then lay somewhere between 12 and 14 cents. With the improvements in mining, concentrating, smelting and refining, it is lower to-day, in spite of higher wages and increased depth of the mines. But the cost of production has to a considerable extent lost its influence as a factor, because production has lagged behind the consumption, which prices considerably higher than the former safety level fail to check. The holding up of new enterprises by financial stringency may in times like the present reduce consumption considerably below the normal and depress the metal to prices approaching the former level of safety, but this does not vitiate the general tendency that copper prices must for the next decade or two average considerably higher than they did before the electrical demand put an entirely different aspect upon the position of the metal.

Now as to the present situation, which is abnormal, because the demand has been checked by purely financial conditions: One fact must be considered, and that is that probably 95 per cent. of the total production of the

United States, Mexico and Canada is being produced at a good profit at a selling price of 15 cents, and that the great mines and many smaller ones are giving their owners very handsome returns at that figure. Therefore there will be no shutting down of mines because of poverty; no cessation of the tremendous development which is now going on to bring new properties to the producing stage. Any scare engineered on that ground need not disconcert buyers of copper, and the suggestion of a concerted restriction of output, which has already been brought forward, may be dismissed as impracticable. Too many big companies are making too much money, even at 15 cents, to tie up with rivals whom they do not trust. A 15-cent level for electrolytic copper involves no hardship to the mines, but on the other hand it may be doubted whether it will at all appreciably stimulate consumption. It would, however, lead to the rapid accumulation of that invisible stock, in the hands of manufacturers and of consumers, which has always been so important a factor in the copper trade, the factor which broke the Secretan corner, and only recently allowed manufacturers to keep out of the market so much longer than expected.

It will be understood, therefore, why consumers of copper, under the present abnormal conditions as to the demand, have failed to take hold vigorously at the 18-cent basis, and are convinced, as many of them profess to be, that it will not be safe for them to stock up, or to commit themselves for longer periods unless the price reaches 15 cents. After all, the manufacturers of the products of copper and its alloys are in the best position to judge of the demand. They will proceed cautiously until they note the turning of the tide, taking into account the fact that, under normal conditions, the requirements of the world show an average increase of 9 to 10 per cent. per annum, with spurts like that of the last two years, which call for a far greater expansion. But whatever the developments of the next 12 months may be, in the demand for the red metal, the trade must face this fact, that for a long period to come the normal price for copper will hold a higher level than it did in the past, because the reserve power of consumption inherent in the inevitable great expansion of the electrical industries will assert itself and will have the first call upon surplus capital as soon as it is available.

### Making Up Stocks in Dull Times.

Those manufacturers who kept their works running full during the last period of business depression and subsequently sold out their stocks at high prices may have more company in the next lull in business. It is noticeable that many are now planning to make up ample stocks of goods whenever the capacities of their works shall exceed the demand for their products. Experience has taught that within reasonable limits capital may be invested profitably in accumulating finished goods, providing they are standard, to a sufficient degree, so that they will lose nothing through changes in fashion or because of improvements in their types which may come with the lapse of short periods of time. Especially is this true of machine tools and other kinds of shop equipment and of machinery for various other purposes, which requires considerable time to build, so that, if there is no stock on hand when the demand revives, there must be considerable delay before orders can be filled.

During the period of comparative inactivity which preceded the wonderful demand of the last two years for all classes of manufactured products, certain machine tool builders kept their works running with normal



forces of men and at normal hours, producing far in excess of current orders. Their storehouses were filled to the limit with machines and their parts, all produced at far lower cost than would be possible to-day. Wages and materials were markedly lower, and the item of general expense entered into costs as a far less important factor. When there suddenly came a great demand for machinery, including enormous hurry orders from Japan and Russia in their war preparations, whole stocks were cleaned out at high prices, and the greater the stock the better pleased were the buyers. Since that time the demand has been almost constantly in excess of manufacturing capacity. The profits realized by those concerns that had the capital and the inclination to keep on with their production in the face of a small and falling market were very handsome. The number of such cases was naturally limited to those whose capital or credit was sufficient to stand a constant outlay of money largely exceeding their current receipts. Others wished to follow the same policy, but could not finance the undertaking. Others who could have done so hesitated in the darkness of general depression, to their regret.

A prominent manufacturer of taps and dies, who has just doubled his plant, asserts that should business drop to nothing he would keep his entire works running full for a year, with undiminished working force, accumulating a stock of goods in readiness for the inevitable turn of the tide. His experience has been that goods can be manufactured cheaply and advantageously in dull times, especially if a plant can be kept working with a full force, which distributes the general running expense over a maximum volume of product. Periods of idleness constitute an important element in costs, and it is desirable to avoid them when possible. In dull times the cost of labor is lower and materials are much cheaper. The prices at which a stock of goods is sold on a rising market are usually high enough to make the difference between them and the cost of production exceed materially the accumulated interest on the capital tied up in the process.

The argument may be made that the greater the prevalence of such a policy the better would be business conditions; more workmen employed, with more money to spend; more materials purchased, helping other industries, and confidence maintained or brought nearer to restoration, until the activity which prepares for a future demand becomes an important factor in bringing it into existence. On the other hand, it must be admitted that if the policy should be too widely followed the stocks thus accumulated would be so great that a reviving demand could be easily supplied and no sharp rise in prices would be experienced. For their own benefit, therefore, those who pile up stocks in dull times should be careful to see that they are not having too much company.

## CORRESPONDENCE.

### The Great Cost of Carelessness.

To the Editor: As a supplement to last week's comments on carelessness, attention is hereby called to what it costs the masses to sustain the losses caused by carelessness through the destruction of property. The efforts of almost all creative mental and manual labor are directed to the enlargement of the world's wealth. This may consist of our clothes, the building which shelters us, the foods we eat, as well as what is found in all the other material things of civilization. One can be easily lost in wonder to think of all that must be gone through in the way of mining and manufacturing before the buggy or car is completed for use in transportation or

the theater is upholstered ready for man's occupancy. All the pages of several issues of *The Iron Age* could be filled with a recital of the processes that take our raw materials up to the finished article and then not say half about what is required to be done to furnish man with the necessities and luxuries of life.

In the innumerable processes that carry work from the mine to the consumer there is little or none that is not subject to an increase in the cost of its production due to the destruction of appliances or property in some form or other by carelessness. Much has been written regarding the heavy burden and misery inflicted by the costs of war and conflagrations, due to the destruction of wealth. Is not the uncalled for destruction of appliances and property through carelessness as much a destruction of wealth as that caused by war and conflagrations?

The object of this communication is to direct thought to the great destruction of property through carelessness in the production of man's needs. Taking such through all our processes of industry, it is safe to say that carelessness is the greatest destroyer of property aside from war and conflagrations. It parallels these in the loss of lives and limbs, increasing the cost of almost every commodity that man uses to an extent that few realize. Let such uncalled for wastage of wealth through carelessness be dispensed with and the masses would be able to enjoy much more of the luxurious and pleasures of modern life than by any other reform in economics that could be advanced.

There are many reasons given for the present high cost of living. Instead of asking the mine owner and manufacturer to make the consumer pay for the cost of carelessness as advocated by President Roosevelt, and thereby further increase the cost of living, let us as a people turn to the cultivation of greater carefulness in our workers. Few factors could do more to increase our wealth and cheapen the cost of living.

THOMAS D. WEST.

SHARPSVILLE, PA., September 7, 1907.

### A Proposed International Tube Syndicate.

In connection with the announcement that the German Gas and Boiler Tube Syndicate has been renewed for three years is the report that arrangements are being considered for a tube agreement including other countries also. It is stated that the German syndicate has already arranged with French tube works on the basis of leaving the markets of Belgium, Holland and Switzerland to the former on condition that it does not attempt to enter the French market. An effort to secure an agreement with the British tube manufacturers was made early in the year, but without success. Negotiations are under way again, it is said, and the matter is also to be broached to tube manufacturers in the United States and Belgium.

According to the *London Engineer*, the total exports of tubes and pipes from the United Kingdom in 1906 amounted to 295,000 tons, as compared with 218,000 tons in the preceding year, and the quantity sent out of the country in the first seven months of the present year shows a further increase. The exports from Germany in 1906 were 72,000 tons, as against 73,000 tons in 1905, and the advance in the first seven months of 1907 has been less than in the case of the British exports. The exports of pipes and fittings from the United States in the fiscal year ending June 30, 1907, were 128,579 tons, and in the fiscal year 1906 they were 147,497 tons. The *Engineer* says:

The exports from the United Kingdom are largely in excess of the combined exports of the United States and Germany, and they are also much superior to the aggregate of those two countries when supplemented by the figures for France and Belgium. In the circumstances it would appear to be injudicious for the British tube makers to enter into an international arrangement which would probably weaken their position eventually and strengthen that of their foreign rivals. It is far preferable to have international competition than to conclude an agreement which, as shown by the working of the Rail Syndicate, assists in building up the trade of other countries, and finally results in a situation from which extrication is exceedingly difficult.



## Ore Mine Taxation in Minnesota.

DULUTH, MINN., September 7, 1907.—Managers of various mining enterprises of the State were at the capital on Thursday last, called by the State Tax Commission to show cause why their taxable valuations should not be increased, the commission stating that it had been reported that the tax values of iron mines and lands were less than on other real property of the State. No action was taken. After remarks by J. B. Cotton, general solicitor for the Oliver Iron Mining Company, by T. F. Cole, president of the same company, and by many others, most of whom merely protested at the scale of valuations, the sessions were adjourned to next Monday, when the matter will be again taken up and gone through with.

The general impression of those at the meeting is that the commission had taken up the intricate matter with a desire to do what was just and right, but had gone about it in a scholastic and professional manner, and had not arrived at practical conclusions, but that it was willing to listen to arguments. The commission had fixed a scale of valuation, dividing mining properties into five main classes, and fixing the value of ore in the ground for the highest class at \$1.25 per ton, scaling other classes down from this to a value of 50 cents a ton. On this they propose to do as with other real estate and assess at 40 per cent. of the value, making the tax value of properties range from 50 cents down to 10 cents per ton.

As an instance of what they would do to individual properties, the Mahoning may be taken. Its present tax valuation is \$3,261,000, and it paid taxes this year amounting to \$38,425.03. Figuring the Mahoning as showing 73,000,000 tons of ore, as the commission does, and placing the bulk of this in the first class, its tax value, based on 40 per cent. of the real value, would be \$34,100,000, and this is what the commission has returned and tentatively proposed to recommend to the State Board of Equalization, which meets in a few days. The Mahoning shipped last year about 1,200,000 tons, and the tax as collected was 3.2 cents per ton.

### A Tenfold Raise Would Be Unjust.

It needs no argument, of course, to prove that a raise of tenfold in this tax, as would be the case if the assessment was raised from about \$3,000,000 to above \$30,000,000, would prove unjust and inequitable. The only relief for the mining companies, providing such a valuation as recommended by the board is carried through, is the fact that, as the valuation increases, the tax rate diminishes. For there is about a fixed sum of money to be raised for the local needs of these range towns, and with a higher valuation there should be a correspondingly less rate. But a minor portion of the tax collected from mines is used for State purposes and for the county, and the rates for these two will be diminished in a far less degree than those for local purposes, especially that for the State, which can be diminished by very little. Then, too, with a low local rate and an opportunity to raise more money with a slightly higher rate, the almost inevitable tendency on the part of local officers will be to push the rate up gradually and spend more money. To offset this, the mining companies must have men on the local official boards friendly to their interests, and this brings the whole matter to politics, something which the mining companies have been especially desirous of keeping away from and which they have kept clear of most successfully since the Oliver Iron Mining Company became the leading factor in mining interests in Minnesota.

To be sure not all mines have their assessment thus tentatively hoisted similarly to the Mahoning, but some have, as, for instance, the Hull, which last year was valued at above \$4,000,000, and is now given a shove up to \$39,000,000. The total value of mines in Minnesota for tax purposes last year was about \$75,000,000.

Should these mines be taxed on such bases as suggested there would, in a few years, pile up an accumulation of tax costs against the ore left as would be confiscatory. The State Commission, nor the State Board of Review, which is to be in session during September,

does not desire anything of that sort, of course, and will undoubtedly make suitable changes this week in this tax matter. As the great bulk of iron ore tonnage in the Lake Superior region is in Minnesota, and as about all the consuming interests of the North and East are owners of mines here, this subject is of considerable importance to the trade.

D. E. W.

## The Jones & Laughlin Steel Company as Entertainer.

On Sunday, September 8, the Jones & Laughlin Steel Company, Pittsburgh, tendered an invitation to some of its friends to visit its plants in the Pittsburgh District, and also its coal property at California, Pa., which is operated under the name of the Vesta Coal Company. The party first met at the company's Soho Works, about 100 guests being present, who were received by B. F. Jones, president; Willis L. King, vice-president; William L. Jones, general superintendent; W. C. Moreland, secretary; Walter G. Miller, in charge of the power transmission department, and a number of other officials.

A thorough inspection of the Soho plant was made. This consists of a blast furnace, 20 x 85 ft., making about 350 tons of Bessemer pig iron per day; also two plate mills, one 108 in. and the other 72 in., making about 400 tons of plates per day. Serving the plate mills are four 25-ton basic open hearth furnaces, with a daily capacity of about 250 tons. The balance of the steel used by the plate mills is brought from the works on the South Side. Large extensions are being made to the Soho plant, consisting mainly of a new structural shop, covering 4 or 5 acres of ground, the main building to include erecting shop and templet shop. This building will be equipped with the most modern tools, consisting of drill presses, angle shears, punches, reamers and plate shears, all machinery to be electrically driven, contract for the electric equipment having been placed with the Westinghouse Electric & Mfg. Company. When these new shops are finished the Jones & Laughlin Steel Company will be able to furnish structural shapes in various forms to the local trade, it being the intention of the company to be in position to furnish steel for one or two stories of almost any size of building promptly from stock. When this building is completed the two erecting shops now maintained at the South Side works will be moved into it. All rolled material from the South Side plant will be taken to the new Soho structural shop and fabricated. A new spike factory is also being erected at Soho, to contain three automatic spike machines with a capacity of 400 to 500 kegs per day, of small and standard sizes. A new chain factory is also being built at Soho, to have a weekly capacity of about 250 tons of machine and hand made coil chain, ranging in size from 3-16 to 1½ in. The plant will contain 40 fires for machine made chain and three forges for hand made chain.

By a special train of two cars the party was conducted to the Eliza furnaces, of which there are five, with a combined daily capacity of about 2500 tons of pig iron. There is also at the Eliza plant a coke works containing 1650 beehive coke ovens, all of which are in blast and furnish coke to the five Eliza furnaces and the Soho furnace. In process of building are 350 more ovens for this plant, which will be put in operation in a short time. The party then proceeded to the company's American Iron & Steel Works, located on the South Side, but the time being limited only a brief inspection of part of this plant was made. The new No. 14 structural mill built last year, and which has a daily capacity for rolling 1000 tons of structural shapes was visited. This mill was illustrated in *The Iron Age* of July 5, 1906. New work at the South Side plant consists of the building of four new Talbot open hearth furnaces, foundations for three of which are finished, and work on the other is just being started. The company now operates five Talbot furnaces, with a daily capacity of about 1250 tons of steel, and the four new ones will turn out about 1000 tons of steel per day, and are expected to be ready by January 1. The South Side plant also contains six 40-ton open hearth furnaces, with a daily capacity of about 500 tons, and three 10-ton Bessemer converters, with a daily ca-

capacity of about 2250 tons of ingots. The steel capacity of the Jones & Laughlin Steel Company now consists of 1250 tons of ingots from the five Talbot furnaces, 2250 tons from the Bessemer plant, 500 tons from the open hearth plant on the South Side and 250 tons from the Soho open hearth plant, making an aggregate daily capacity of 4250 tons. For the week ending September 7 the company made a daily average of a little over 3500 tons of billets.

Luncheon was served in the dining rooms in the office building at the South Side works, after which another special train was boarded, and the party taken to California, Pa., where the company owns about 20,000 acres of coal lands, which are operated, as stated above, under the name of the Vesta Coal Company. Nos. 3 and 4 mines were visited, the total daily capacity of these two mines being about 9000 tons, 4000 tons of which are made into coke and the other 5000 tons are used in the mills. Practically all mining is done by electric mining machines, the coal being hauled in cars from the mines to the tipples located on the Monongahela River by electric trolley. The company owns five steamboats and 190 coal barges, which are employed in taking coal down the river to the coke plant at the Eliza furnaces and to the mills at Soho and on the South Side. Also about to be opened is No. 5 mine, about 10 miles further up the river, which is expected to be a large producer.

The Jones & Laughlin Steel Company is constantly increasing its capacity in the manufacture of iron and steel products, and at the present time has facilities for turning out annually about 1,100,000 tons of pig iron, all of which is used in its steel works, while it is also a large buyer of iron in the open market. The company has an annual capacity for turning out 780,000 tons of Bessemer steel ingots and 655,000 tons of open hearth ingots, the total annual steel capacity being 1,435,000 tons. It has an annual capacity of 1,340,000 tons of billets, while in finished material such as steel bars, plates, beams, channels, angles and shapes it has a capacity of 1,250,000 tons per year. In the lighter forms of iron and steel, the company has facilities for making 75,000 tons of cold rolled and cold drawn shafting, 10,000 tons of chain, 8,000 tons of spikes, bolts and rivets, and in addition operates foundries with an annual capacity for making 25,000 tons of castings. Its plants are located in the city of Pittsburgh proper, occupying upward of 225 acres. This is entirely exclusive of the new plant now under way at Aliquippa which will embrace at the start three blast furnaces with a daily capacity of 1500 tons, and a Talbot steel works with about the same daily capacity.

After making a thorough inspection of the coal mines, the party returned to the special train and was taken back to Pittsburgh, luncheon being served *en route*. The trip was thoroughly instructive in every way, and gave the guests a splendid opportunity of securing information as to the magnitude of the company's plants.

### The Pittsburgh Chain & Forge Company.

The Pittsburgh Chain & Forge Company, with offices in the Frick Building, Pittsburgh, recently purchased 3 acres of land at Paden City, W. Va., 30 miles below Wheeling, on the Ohio River, on which it will build a new plant. The Schlieper Engineering Company, Wabash Building, Pittsburgh, has been engaged to look after the engineering and contracting work. Ground has been broken for heavy concrete foundations and plans have been made for a 60 x 200 ft. iron clad building. It will be of modern construction and fitted throughout with ventilators, revolving windows and doors. Railroad tracks will be run through the center, permitting the best facilities for receiving materials and shipping products.

This building will be devoted to the manufacture of hand made chains exclusively, of all sizes up to the heaviest, for crane and dredge service. It will contain a power plant, consisting of gas engine and generator for making light and furnishing power for the motor driven machinery, a 200,000-lb. chain testing machine, modern forges, &c. An improved air and ventilating system will

be installed to carry the excess heat away from the fires and enable the workmen to handle their work with minimum discomfort. The company also proposes to install its own coke ovens, and immediately after the chain plant is completed a 50 x 80 ft. building will be erected, to be fitted with coke crushing machinery. The chain works will be completed and in operation early in January and at the start will give employment to about 100 skilled workmen. It is proposed later to erect another building, about 75 x 300 ft., in which a line of general drop forgings, all sizes and shapes, will be made. Heavy steam hammers and the latest devices used in such work will be ordered. The officers and directors of the Pittsburgh Chain & Forge Company are men of wide experience in the manufacture of chains and forgings, who know what the trade requires and who are building a plant to meet the demand for high grade products.

### Lake Superior Labor Conditions.

DULUTH, MINN., September 7, 1907.—The annual report of the State Department of Labor, as to iron mines of Minnesota, has been issued. It shows 104 mines in St. Louis County, of which 91 were operated during the year ending August 1, 1907. Statistics of production, &c., need not be repeated here as they were given months ago. The report gives 51 fatalities from mine work, and 66 accidents not fatal, making one man killed for each 520,464 tons of ore shipped. In stripping operations during the 12 months 1,459,953 cu. yds. were removed and there were 21 fatal accidents, or one man for each 69,521 yds. Wages for the year were \$2.46 per day for underground miners, \$2.75 for surface and skilled labor, \$4.82 for mine captains, \$3 for shift bosses, and from \$1.55 for tally boys to an average of \$2.93 for contract miners. Other classes of employees averaged as follows: Chemists \$5.18, foremen on surface \$3.08, mining engineers \$4, clerks \$2.13.

The statement above referred to that the removal of stripping from mines for the year ending with July last was 1,459,953 cu. yds., was incorrect. The writer does not know the precise figure, but should estimate it at about 16,000,000 yds. It is known that from the Hull mine alone more than 1,000,000 yd. were removed, and that from the Canisteo District there was an average monthly yardage of more than 200,000 yds. The Sellers and Hartley mines removed better than 500,000 yd. each during the year.

Speaking of the removal of stripping, during the past month the Sellers, Hartley and Hull, three mines at Hibbing that are being stripped on company account without the intervention of contractors, took a total of more than 650,000 yds., and this with nine shovels at work. The Hull in August mined 500,000 tons of ore in addition to its immense stripping. The mine will doubtless produce more ore than any mine on Lake Superior this year, and will be in position to make a still larger output in 1908. This August removal of stripping from three mines, employing nine shovels in the task, was far beyond what is being done at Panama. While the stripping cost on the Mesaba has been greatly increased during the past year or two, both by higher wages, higher costs of supplies, and a lessened efficiency of manual labor, it is still low. Contractors' prices have risen, and where they might have been taken two years ago at from 30 to 35 cents a yard, they will now average, perhaps, nearly 40 cents. The companies carrying forward their own work are doing it for less than this, say about 30 cents, though some claim a smaller figure. Two years ago some cost sheets showed as low as 18, 19 and 20 cents a yard.

Labor is less efficient than ever before, as it is of a poorer class. New common labor coming into the region is quite largely composed of men who do not eat the proper food to give them strength.

Underground labor, however, is better. In consequence of the dearth of men for underground mines just now many properties are working single shift that formerly worked day and night. It has been found that two men at a contract, in place of four formerly, are doing nearly as much as the whole crew did, and their wages



are running up from about \$3 to \$4 and \$4.50. It has been found easier to keep strikers and agitators from open pit than from underground mines during the strike, which is one of the reasons for the lack of men underground. Many of the present day class of miners here are timid, fearing to go below on account of what they think may happen while they are down. In other words, they do not come from a race of mineworkers.

The strike itself is petering out. Except for the class of young Finnish laborers, most men are at work, and the Finns are leaving the district. The Western Federation is doling out strike benefits with a very sparing hand, and gives signs of exhaustion. Its treasury, so far as the Mesaba range is concerned, is pretty well emptied, no doubt, and the daily movement of ore is discouraging to the few who are holding out.

Chief among the new shippers of the fall is the Hartley mine, of the Oliver Iron Mining Company, located on the Northeast of the Northwest and the Northwest of the Northeast of section 23-58-20, Mesaba range. It has been in the hands of strippers for 18 months, and sent out its first ore last week. One shovel is in ore and a large tonnage can be forwarded before the close of the year, if desired. The mine is in the center of one of the most productive areas in the world, and will be a great producer in 1908. The ore body is long and narrow and contains some 6,000,000 or 7,000,000 tons of ore. It has not been especially expensive in opening, for the overburden is rather light. Three, and at times four, shovels have been working in the pit for some time. D. E. W.

### The Philadelphia Foundrymen's Association.

The Philadelphia Foundrymen's Association reassembled on the evening of September 4 at the Manufacturers' Club, after the usual summer vacation. It was the one hundred and sixty-ninth regular meeting of the association, and in the absence of President Devlin, who is abroad, was presided over by H. L. Haldeman. The attendance was much larger than is usually the case at the early fall meeting, this being due no doubt to the interesting paper and pictorial description of the universal system of machine molding, which was to be presented by E. Ronceray of Ph. Bonvillain & E. Ronceray, Paris and Philadelphia. The report of the treasurer, Josiah Thompson, showed the association to be in excellent financial condition, a balance of \$2336.51 being in hand, with no outstanding bills.

The final report of the General Entertainment Committee, in connection with the recent convention of the American Foundrymen's Association, in this city, was made by the secretary, A. A. Miller. The report was brief, all the work of the committee had been concluded and the unexpended balance of the contributions to defray the cost of the entertainment, amounting to 50.088 per cent., had been returned to the contributors. The committee was discharged with the thanks of the association.

The Deemer Steel Casting Company, S. S. Deemer, president, Newcastle, Del., was elected to membership in the association.

Marshall Cushing, of the Manufacturers' Club, made a short address, touching on the general conditions of manufacturing business in the country.

E. Ronceray, who was to present the paper of the evening, was then introduced, and after a few remarks requested E. H. Mumford, of the E. H. Mumford Company, which has undertaken the American agency for the Universal system of molding machines, to describe the illustrations and make the remarks in connection with the machines. The ordinary lantern slides were first used for purposes of description and the operation of the machines was then shown by the use of cinematograph views, which made the observation of the machines in actual foundry work possible.

It was shown that six sizes of the French machines covered the entire range of molding sizes, from the smallest up to molds 4 ft. x 5 ft., and 3 ft. 6 in. x 10 ft. The standard machines operating with water at 750 lb. pressure per square inch in a manner similar to the

American compressed air machines were shown to have freely adjustable pattern drawing apparatus, which could be set in a few minutes time to any size or shape of flask within the ramming capacity of the overhung hydraulic cylinder on the machine. The fact that with each change of patterns there is brought to the machine the apparatus which contains the center line for the pattern match and the flask pins, entirely independent of the machine itself, illustrated the flexibility of the French system and the comparative simplicity of the machines.

It was shown that on these machines the plunger which draws the patterns is also used to compress from the under side pockets of deep sand without loss of time, and the speed of the pattern draft was shown to be entirely within the control of the operator. In the rotary or inverting type of machines, it was seen that the ramming plunger, descending from above in the first operation of the machine, immediately becomes a clamp holding everything together, while the machine is inverted, and then, in the inverted position, becomes the pattern drawing mechanism simply by the exhaust of the pressure water, lowering the finished mold from the overhung pattern, the pattern drawing and double ramming plunger, now on top, following the deep green sand parts during the early part of the descent of the mold.

It was shown that on the largest machines there is simply a floor plate on which supports for flasks and patterns are placed in any convenient position, and the same principles as in the smaller machines are used in molding. The simplicity of the hydraulic machinery was illustrated and it was explained that the power consumption is less than one quarter what it is with compressed air, considering the question from the delivery of the pressure generator to the number of finished molds of a given size.

The novel methods used in making hard, non-shrinkable, white metal patterns and stripping plates were fully illustrated and described, and stripping plate pattern and "clinchers" were exhibited. Among these was a flask of six 1 1/4 in. gate valve bodies, the patterns and stripping plate for which had been made complete, ready for work, in three days by one molder, who had only a single half wooden pattern to work from and that not a master pattern.

The general statement was made that stripping plate patterns produced by the French process cost about one-sixth of what they cost in iron as known by the Americans to-day, even with edges babbitted, and that there was no doubt, from the casting methods used, that the more intricate they were, the greater was the economy of the French process.

It is contended that as the French method of pattern making furnishes the foundry with jigs, which are the only thing supplied to the foundry by the machine shop, the foundry becomes almost absolutely independent of both the machine shop and the pattern shop in the supply of its pattern equipment. Moreover, these foundry jigs used for the production of reversible or nonreversible patterns give more accurate results than are possible without the greatest skill and care by machine jig processes.

With the foundry independent as to its patterns, and with stripping plate machines having no relation to the pattern simpler and costing less than machines which have, the foundryman can supply himself with molding machines and patterns in a way that has never been possible for him to do before. It would seem that machine molding comes nearer the foundry idea than ever. At the conclusion of the description, both Mr. Ronceray and Mr. Mumford were given a vote of thanks by the association for the excellent manner in which they had presented the subject.

One of the branch offices of the National Metal Trades Association makes the following report concerning labor conditions: "Many concerns report that men are being laid off, and many are applying for positions. While it is noticeable that more men are out of work than formerly, they are not high class men."



## Pig Iron Output Less.

The August Total 2,250,410 Tons.

### A Further Reduction in Active Capacity.

The production of pig iron in August fell about 5000 tons below that of July, and the capacity of the blast furnaces active on September 1 was nearly 5000 tons a week less than that reported at the opening of August. Our monthly statistics given below show that the falling off from the July total was all due to the slightly lessened production of Northern steel works' furnaces. The August production of coke and anthracite iron was 2,250,410 tons, as against 2,255,660 tons in July. The capacity of the 331 furnaces active on September 1 was 508,568 tons a week, which compares with 513,471 tons a week from 336 furnaces on August 1. The steel works' furnaces produced 1,445,685 tons in August, as against 1,452,557 tons in July. Below we give the production of the coke and anthracite furnaces in August and in the four months preceding:

| Monthly Pig Iron Production—Gross Tons.          |                     |                   |                    |                    |                      |
|--|---------------------|-------------------|--------------------|--------------------|----------------------|
|  | April.<br>(30 days) | May.<br>(31 days) | June.<br>(30 days) | July.<br>(31 days) | August.<br>(31 days) |
| New York....                                     | 142,241             | 145,694           | 141,044            | 155,658            | 150,385              |
| New Jersey....                                   | 30,715              | 30,814            | 32,360             | 34,633             | 35,026               |
| Lehigh Valley....                                | 63,926              | 70,540            | 66,097             | 61,854             | 60,160               |
| Schuylkill Val....                               | 59,670              | 64,069            | 57,184             | 60,035             | 59,807               |
| Lower Susquehanna and<br>Lebanon Val....         | 67,665              | 77,274            | 67,916             | 61,279             | 64,456               |
| Pittsburgh Dis....                               | 530,527             | 537,088           | 544,247            | 534,668            | 525,341              |
| Shenango Val....                                 | 175,441             | 156,103           | 157,975            | 167,319            | 152,917              |
| West. Penn....                                   | 129,079             | 133,720           | 133,935            | 129,887            | 129,922              |
| Md., Va., and<br>Kentucky....                    | 96,210              | 99,461            | 89,028             | 86,496             | 84,462               |
| Wheeling Dis....                                 | 118,747             | 122,666           | 105,479            | 108,659            | 121,078              |
| Mahoning Val....                                 | 177,425             | 191,473           | 178,731            | 172,704            | 177,438              |
| Central and<br>North. Ohio....                   | 168,537             | 158,394           | 160,830            | 179,987            | 176,700              |
| Hocking Valley<br>and Hanging<br>Rock....        | 28,677              | 31,338            | 35,365             | 34,050             | 35,590               |
| Ill., Mich., Minn.,<br>Wis., Mo. and<br>Colo.... | 252,714             | 291,789           | 287,633            | 293,817            | 293,602              |
| Alabama....                                      | 142,174             | 151,454           | 132,630            | 136,936            | 144,374              |
| Tennessee,<br>Georgia and<br>Texas....           | 35,494              | 33,628            | 35,121             | 37,678             | 39,152               |
| Totals....                                       | 2,219,242           | 2,295,505         | 2,234,575          | 2,255,660          | 2,250,410            |

**Production of Steel Companies.**—Returns from all the plants of the United States Steel Corporation, the Cambria, Pennsylvania, Maryland, Lackawanna, Wheeling, Republic, Jones & Laughlin, La Belle, Bethlehem, Calumet and Colorado companies show the following totals of products month by month. We give separately a statement of the output of spiegeleisen and ferromanganese, which is included for each month in the total production:

| Production of Steel Companies.—Gross Tons. |           |           |           |        |        |
|--|-----------|-----------|-----------|--------|--------|
| Fig.—Total production.—                    |           |           |           |        |        |
|  | 1903.     | 1906.     | 1907.     | 1906.  | 1907.  |
| January....                                | 1,129,042 | 1,358,015 | 1,406,397 | 26,305 | 21,477 |
| February....                               | 1,129,042 | 1,258,015 | 1,406,397 | 26,305 | 21,477 |
| March....                                  | 1,027,937 | 1,226,760 | 1,317,923 | 26,988 | 19,444 |
| April....                                  | 1,232,255 | 1,400,395 | 1,424,827 | 23,595 | 31,091 |
| May....                                    | 1,222,710 | 1,333,591 | 1,446,788 | 28,054 | 26,527 |
| June....                                   | 1,287,438 | 1,372,423 | 1,470,080 | 29,447 | 28,822 |
| July....                                   | 1,149,404 | 1,293,437 | 1,457,230 | 22,737 | 30,942 |
| August....                                 | 1,114,400 | 1,323,391 | 1,452,557 | 20,153 | 25,343 |
| September....                              | 1,186,050 | 1,237,485 | 1,445,685 | 18,327 | 23,696 |
| October....                                | 1,262,033 | 1,264,380 | .....     | 24,078 | .....  |
| November....                               | 1,370,960 | 1,452,200 | .....     | 23,517 | .....  |
| December....                               | 1,334,644 | 1,411,350 | .....     | 29,119 | .....  |
|  | 1,356,962 | 1,445,528 | .....     | 21,707 | .....  |

Among the furnaces which blew out in August were one Bethlehem and one New Jersey Zinc in the Lehigh Valley, one Duquesne in Allegheny County, Alice and Ella in the Shenango Valley, Princess and West End in Virginia, one Ashland and Norton in Kentucky, Emma in Northern Ohio, Hannah in the Mahoning Valley, and Shelby, and one Clifton in Alabama.

The list of furnaces put in blast in August includes Detroit on Tug Island, one Edgar Thomson, the new No. 8 and another Cambria at Johnstown, Pa., Colebrook in the Lebanon Valley, one Joliet in Illinois, a furnace in

the Hanging Rock District, Philadelphia, and one Bessemer in Alabama.

The table below gives the weekly capacity of coke and anthracite furnaces in blast September 1 and August 1:

| Coke and Anthracite Furnaces in Blast. |                               |                                     |                       |                                  |                       |
|--|-------------------------------|-------------------------------------|-----------------------|----------------------------------|-----------------------|
| Location<br>of furnaces.               | Total<br>number<br>of stacks. | September 1.<br>Number<br>in blast. | Capacity<br>per week. | August 1.<br>Number<br>in blast. | Capacity<br>per week. |
| New York:                              |                               |                                     |                       |                                  |                       |
| Buffalo.....                           | 14                            | 14                                  | 28,685                | 14                               | 30,733                |
| Other New York....                     | 10                            | 5                                   | 5,273                 | 5                                | 5,114                 |
| New Jersey.....                        | 8                             | 7                                   | 7,759                 | 7                                | 7,719                 |
| Spiegel.....                           | 2                             | 2                                   | 149                   | 2                                | 156                   |
| Pennsylvania:                          |                               |                                     |                       |                                  |                       |
| Lehigh Valley....                      | 25                            | 19                                  | 12,649                | 20                               | 13,041                |
| Spiegel.....                           | 3                             | 2                                   | 842                   | 3                                | 924                   |
| Schuylkill Valley....                  | 14                            | 13                                  | 12,831                | 13                               | 12,768                |
| Spiegel.....                           | 1                             | 1                                   | 755                   | 1                                | 791                   |
| Low. Susquehanna....                   | 8                             | 6                                   | 6,446                 | 6                                | 6,640                 |
| Spiegel.....                           | 1                             | 0                                   | 0                     | 1                                | 692                   |
| Lebanon Valley....                     | 10                            | 10                                  | 7,240                 | 9                                | 6,510                 |
| Pittsburgh Dist....                    | 44                            | 42                                  | 116,050               | 42                               | 118,950               |
| Spiegel.....                           | 3                             | 3                                   | 2,572                 | 3                                | 3,157                 |
| Shenango Valley....                    | 20                            | 18                                  | 32,802                | 20                               | 37,804                |
| West. Penn.....                        | 27                            | 22                                  | 31,637                | 20                               | 28,861                |
| Maryland.....                          | 4                             | 4                                   | 8,057                 | 4                                | 7,721                 |
| Wheeling Dist....                      | 14                            | 14                                  | 27,342                | 14                               | 26,435                |
| Ohio:                                  |                               |                                     |                       |                                  |                       |
| Mahoning Valley....                    | 18                            | 17                                  | 39,487                | 18                               | 38,997                |
| Central and North.<br>and Michigan.... | 21                            | 20                                  | 40,840                | 20                               | 41,093                |
| Hocking Valley and<br>Hanging Rock.... | 12                            | 12                                  | 8,379                 | 11                               | 8,183                 |
| Illinois.....                          | 23                            | 22                                  | 48,783                | 21                               | 46,536                |
| Spiegel.....                           | 1                             | 1                                   | 959                   | 1                                | 801                   |
| Minnesota.....                         | 1                             | 1                                   | 1,216                 | 1                                | 1,218                 |
| Wisconsin.....                         | 6                             | 6                                   | 5,598                 | 6                                | 5,185                 |
| Missouri.....                          | 1                             | 1                                   | 695                   | 1                                | 705                   |
| Colorado.....                          | 6                             | 5                                   | 8,687                 | 6                                | 9,754                 |
| Spiegel.....                           | 0                             | 1                                   | 476                   | 0                                | 0                     |
| The South:                             |                               |                                     |                       |                                  |                       |
| Virginia.....                          | 23                            | 14                                  | 9,112                 | 16                               | 9,908                 |
| Kentucky.....                          | 7                             | 2                                   | 1,471                 | 4                                | 2,401                 |
| Alabama.....                           | 46                            | 30                                  | 32,851                | 30                               | 31,882                |
| Tennessee.....                         | 18                            | 14                                  | 7,315                 | 14                               | 7,140                 |
| Georgia and Texas....                  | 3                             | 3                                   | 1,610                 | 3                                | 1,652                 |
| Totals.....                            | 394                           | 331                                 | 508,568               | 336                              | 513,471               |

The active weekly capacity in coke and anthracite iron has shown the following fluctuations since January 1, 1903:

| Capacity<br>per week.        | Capacity<br>per week.        |
|------------------------------|------------------------------|
| September 1.....508,568      | April 1.....439,564          |
| August 1.....513,471         | March 1.....403,157          |
| July 1.....528,170           | February 1.....405,792       |
| June 1.....523,220           | January 1, 1905.....377,879  |
| May 1.....524,538            | December 1, 1904.....357,846 |
| April 1.....496,456          | November 1.....334,249       |
| March 1.....511,035          | October 1.....319,249        |
| February 1.....492,359       | September 1.....291,573      |
| January 1, 1907.....507,397  | August 1.....246,092         |
| December 1, 1906.....513,860 | July 1.....272,301           |
| November 1.....500,580       | June 1.....336,107           |
| October 1.....469,665        | May 1.....368,244            |
| September 1.....441,426      | April 1.....337,257          |
| August 1.....449,908         | March 1.....308,751          |
| July 1.....460,570           | February 1.....273,692       |
| June 1.....472,622           | January 1, 1904.....185,636  |
| May 1.....484,031            | December 1, 1903.....244,156 |
| April 1.....484,240          | November 1.....273,715       |
| March 1.....479,737          | October 1.....353,142        |
| February 1.....482,156       | September 1.....360,197      |
| January 1, 1906.....468,673  | August 1.....353,681         |
| December 1, 1905.....475,814 | July 1.....384,825           |
| November 1.....460,449       | June 1.....388,178           |
| October 1.....445,468        | May 1.....373,496            |
| September 1.....412,563      | April 1.....386,215          |
| August 1.....410,088         | March 1.....347,424          |
| July 1.....408,617           | February 1.....335,239       |
| June 1.....443,092           | January 1, 1903.....346,073  |
| May 1.....452,031            |                              |

Machinists in convention at Youngstown, Ohio, last week decided to organize a new district to include Franklin, Oil City, Meadville and vicinity. An effort will be made to organize machine shops in those places on the eight-hour day.

During the first six months of 1907 Belgium produced 708,820 metric tons of pig iron, as compared with 658,860 tons in the first half of 1906.

It is stated that the orders received by the Westinghouse Electric & Mfg. Company in August aggregated \$4,000,000.

## PERSONAL.

Elbert H. Gary, chairman of the United States Steel Corporation, arrived from Europe on Tuesday.

Courtland S. Jones has been appointed instructor in rolling mill designs in the school of applied science in the Carnegie Technical Schools, Pittsburgh. Mr. Jones had previously been employed by the A. Garrison Foundry Company, the Illinois Steel Company and the Lackawanna Steel Company.

William H. McFadden of Mackintosh, Hemphill & Co., Pittsburgh, and also president of the American Foundrymen's Association, has sailed for Europe, having been in ill health for some time.

A. F. Kellar has resigned as chief engineer of the Mesta Machine Company, Pittsburgh, to accept a position at the plant of the Indiana Steel Company, Gary, Ind.

James C. Wallace, president of the American Shipbuilding Company, Cleveland, is expected to arrive in New York from Europe early next week. He visited several British shipyards on the trip.

F. A. Schroeder has severed his connection with the Cambria Steel Company, Johnstown, Pa., as superintendent of the roll department, and after a brief vacation will engage in engineering work in Boston, Mass.

Charles M. Dally, 29 Broadway, New York, representing in the United States the Prescott electric welder and the Prescott paper pinion of the British Insulated Wire Company, Liverpool, England, has returned from a trip to England in the interest of the company.

M. J. Drummond, New York, returned September 9, after an invigorating sojourn in Europe.

The business of the Standard Roller Bearing Company, Philadelphia, Pa., has grown to such proportions as to necessitate the establishing of a thoroughly organized department of publicity. The new department will be conducted by C. Dickens Sternfels, who has been identified in a similar capacity with the Arthur Koppel Company, Pittsburgh, Pa., for the past three years. Mr. Sternfels assumes charge of the Standard Roller Bearing Company's publicity department September 16 and will be located at Philadelphia.

Theodore H. Bailey, assistant general manager of the General Electric Company for 20 years, has been appointed general manager of the Kobusch Automobile Company, St. Louis, and has taken charge. The Kobusch Company, which represents an investment of about \$1,000,000, is owned by the St. Louis Car Company. It controls the American patents and patterns of the French Mors machine.

Stirling H. Thomas has been appointed general manager of the Pusey & Jones Company, Wilmington, Del., a new position created since the reorganization of the company with John M. Mendinhal as president.

The West Virginia Bridge & Construction Company, Wheeling, W. Va., has placed its property in control of F. M. Pett of New York City, who has been treasurer and acting general manager of the company for some time.

Clay Sprecher has resigned as Cleveland sales manager of the Allis-Chalmers Company and has become associated with Arthur G. McKee, consulting and contracting engineer, 514 Rockefeller Building, Cleveland. Mr. Sprecher has been succeeded in his vacated position by George A. Williams, who for some time has been engineer in charge of the construction of interurban railways by the same company.

R. R. Hillman has resigned his position as general manager of the New York State Steel Company, Buffalo, N. Y. No successor will be appointed. The works organization will remain the same under the direction of Superintendent F. E. Potter.

**Resources of the Philippines.**—Through the courtesy of the American Hardware & Plumbing Company, Manila, Philippine Islands, we have received copies of a number of pamphlets issued by the Manila Merchants' Association

calling attention to the resources of the Philippines. These pamphlets are issued in the form of bulletins bearing serial numbers. One is devoted to hemp, another to tapioca, another to rubber and gutta percha, another to maguay, &c. Each bulletin shows how the islands are adapted by climate and soil to the production of the articles referred to, and sets forth the opportunities for the investment of capital. The members of the Manila Merchants' Association are prominent business men who have subscribed 100,000 pesos to promote this movement to induce the influx of men of enterprise and capital. Copies of the bulletins can doubtless be had on application to the association.

## OBITUARY.

H. W. HILL, founder and president of the Hill Clutch Company, Cleveland, Ohio, died September 7, aged 54 years. His death resulted from a physical collapse attributed to too close attention to business.

DR. CHARLES STEWART WURTZ died August 15, in Upper Providence, Delaware County, Pa., aged 78 years. He was once vice-president of the Cambria Iron Company and for many years was a director of that company.

MRS. MARGARET TRUESDALE KENNEDY, mother of a remarkable number of talented sons, died August 26 at the family homestead in Lowellville, Ohio, aged 83 years. Her husband died in 1896. Julian Kennedy, Pittsburgh, the engineer and steel expert, is the oldest of the sons. Congressman James Kennedy, Youngstown, Ohio, is the next. The others are Hugh Kennedy, general manager of the Buffalo & Susquehanna Iron Company, Buffalo; John H. Kennedy, general manager of the Punxsutawney Iron Company, Punxsutawney, Pa.; Samuel A. Kennedy, general manager of the Iroquois Iron Company, South Chicago; Thomas W. Kennedy, president and general manager of the Adrian Furnace Company, Dubois, Pa., and Walter Kennedy, a prominent engineer of Pittsburgh.

WALTER G. COTTON, president of the American Tube Works, Boston, Mass., died suddenly September 9, at his home in Longwood.

HENRY J. VOGEL, a member of the firm of Vogel Bros., tinware manufacturers, Brooklyn, N. Y., died September 3, at Hempstead, L. I., aged 59 years. He was born in Brooklyn, and in 1880, with his brothers, William and Louis, formed a partnership for the manufacture of tinware, and the present factory at Kent avenue and South Ninth street is one of the most extensive of its kind in the city. He was for 20 years the superintendent of the Sunday school of St. John's Methodist Episcopal Church and was vice-president of the Manufacturers' Association. He leaves a widow and two daughters.

**The Canadian Government and the Coal-Steel Dispute.**—A delegation from Nova Scotia headed by E. M. Macdonald, M.P., of Pictou, waited on Sir Wilfrid Laurier September 9, and asked the Premier along with Lord Grey to take a hand in the settlement of the long outstanding dispute between the Dominion Iron & Steel Company and the Dominion Coal Company. The Premier expressed his willingness to be of service, but he did not see what his excellency or himself could do. He pointed out that the Government, after considerable pressure, had managed to get both parties to the dispute together. He did not see what else could be done at the present stage of the proceedings.

Illinois, says the United States Geological Survey, contains more coal producing counties than any other State in the Union, there being 51 counties which in 1906 produced more than 1000 tons each. In three of these the output exceeded 4,000,000 tons—namely, St. Clair County, with 4,578,372 tons; Sangamon, with 4,543,849 tons, and Williamson, with 4,417,987 tons. Madison County produced 3,651,296 tons; Macoupin, 3,637,827 tons, and Vermillion, 2,389,385 tons, while Grundy, La Salle, Bureau, Fulton, Marion and Perry counties each produced over 1,000,000 tons.



## The La Belle Iron Works Annual Report.

The annual meeting of the stockholders of the La Belle Iron Works, Steubenville, Ohio, was held in Wheeling, W. Va., September 10. The old officers were re-elected, consisting of Isaac M. Scott, president; R. C. Kirk, treasurer; H. D. Westfall, secretary; W. B. Higgins, assistant secretary and W. D. Crawford, general superintendent. The report of operations of the company submitted to the stockholders by President Scott showed the past year, ending June 30, 1907, to have been by far the best in point of earnings and output of any in the history of the company. The following details taken from the report include the operations of subsidiary companies:

| INCOME ACCOUNT.  |                       |
|--|-----------------------|
| Earnings from operations.....  | \$2,635,154.77        |
| Less provision for exhaustion of minerals and extinguishment of lease values, development, &c..... | \$53,007.80           |
| Provision for contingencies.....   | 125,000.00            |
|  | <u>178,007.80</u>     |
| Net profits.....   | \$2,457,146.97        |
| Deduct interest on mortgage bonds....  | 150,000.00            |
| Dividends on capital stock:  |                       |
| Capital stock dividend.....  | \$550,880             |
| Cash dividends.....  | 583,916               |
|  | <u>1,134,796.00</u>   |
|  | <u>1,284,796.00</u>   |
| Surplus for the year.....  | \$1,172,350.97        |
| Surplus at June 30, 1906.....  | 2,228,459.02          |
| Total.....   | <u>\$3,400,809.99</u> |
| Less special depreciation.....   | 250,000.00            |
| Net surplus at June 30, 1907.....  | <u>\$3,150,809.99</u> |

| CONSOLIDATED BALANCE SHEET.   |                        |
|---|------------------------|
| Assets.   |                        |
| Capital Assets:   |                        |
| Real estate, buildings, plant, machinery, &c., at Steubenville and Wheeling.....    | \$8,311,702.63         |
| Coal and limestone properties....   | 482,067.78             |
| Mining leases.....  | 100,000.00             |
| Machinery and equipment at mines, including cost of opening mines.....              | 932,455.19             |
| Patterns and patents.....   | 20,000.00              |
| Total capital assets.....   | <u>\$9,936,225.60</u>  |
| Deferred charges to operations, insurance unexpired, &c.....                        | 7,721.49               |
| Current Assets:   |                        |
| Inventories.....  | \$2,008,536.20         |
| Accounts receivable (after deducting reserve for discounts, &c.).....               | 1,648,251.14           |
| Bills receivable.....   | 138,027.97             |
| Cash on time deposits with banks.....   | 450,000.00             |
| Cash on current accounts with banks, and on hand.....                               | 652,053.02             |
| Total current assets.....   | <u>4,896,868.33</u>    |
| Total.....  | <u>\$14,840,815.42</u> |
| Liabilities.  |                        |
| Capital Liabilities:  |                        |
| Capital stock.....  | \$7,500,000.00         |
| Less—in treasury.....   | 63,400.00              |
|   | <u>\$7,436,600.00</u>  |
| First mortgage 6 per cent. bonds.....   | 2,500,000.00           |
| Total capital liabilities....   | <u>\$9,936,600.00</u>  |
| Funds:  |                        |
| For depreciation.....   | \$500,000.00           |
| For exhaustion of minerals and extinguishment of lease values, development, &c..... | 120,317.92             |
| For rebuilding, &c.....   | 100,637.04             |
| For contingencies.....  | 167,567.45             |
| Total funds.....  | <u>888,522.41</u>      |
| Current Liabilities:  |                        |
| Accounts payable.....   | \$479,684.33           |
| Pay rolls accrued.....  | 117,750.66             |
| Royalties accrued.....  | 55,031.14              |
| Taxes accrued.....  | 41,284.89              |
| Interest on mortgage bonds accrued.....   | 22,400.00              |
| Dividend on capital stock.....  | 148,732.00             |
| Total current liabilities....   | <u>864,883.02</u>      |
| Surplus at June 30, 1907.....   | 3,150,809.99           |
| Total.....  | <u>\$14,840,815.42</u> |

The ore properties were operated throughout the year with satisfactory results both as to output and quality of product. While a somewhat decreased output is shown for the La Belle mine, it can be regarded as sat-

isfactory, surrounding conditions considered. The ore from this mine continues to grade a good Bessemer, rendering it advisable to dispose of it on the market rather than use it in the company's furnaces. The Miller mine production shows an increase over last year of 54 per cent. With the development that will naturally come about with the continued operation of this property, a further increase in the output this season can be expected. Owing to interruptions in the work, brought about largely by inadequate car supply, only a sample cargo of ore was shipped from the Wacootah property last season; but with the opening of spring work was pushed steadily along, and at the present time this mine is producing at the rate of 2000 tons per day, which output can be still further increased as the necessities of the company may suggest. With the Miller and Wacootah properties producing even on their present basis, the soft ore requirements of the Steubenville Furnaces are fully taken care of.

The coke property in Fayette County, Pa., produced during the year an increase of 82 per cent. over the previous year's production. In addition to increasing the output, owing to better operating practice, the quality of the year's product was much improved over that of last year, the whole tonnage being used in the Steubenville furnaces. The Steubenville coal mines produced during the year practically the same tonnage as was taken the previous year.

In order that the position of the Steubenville plant should be still further fortified, the previous large holdings of steam and furnace coal in Brooke County, W. Va., were increased by the purchase of about 2500 acres of Upper Freeport coal, thus giving at this point, in one body and easily accessible from the point of consumption, a sufficient acreage to supply the company's coal requirements for an indefinite period.

Throughout the year the manufacturing plants were operated continuously, with the exception of such stoppages as were unavoidable, the principal interruption being caused by the March flood, which compelled a complete suspension of operations at the Steubenville plant of about one week's duration. Fortunately, aside from the loss of profits and the attendant expense of cleaning up, no serious damage from this cause was sustained.

Believing a further increase in the company's finishing capacity to be highly desirable, the management, under the direction of the Board of Directors, contracted for and there is now in the course of construction one 72-in. plate mill, two jobbing mills, eight sheet mills and a galvanizing and pickling department, together with the necessary handling and shipping facilities. To supply these new mills will require monthly between 10,000 and 12,000 tons of slabs and bars, thus finishing on the ground this considerable tonnage of the company's output which it has heretofore been necessary to market in a raw or semifinished state.

There is also being added to the present equipment one basic open hearth steel furnace, which will increase the company's output of raw steel over 10 per cent. All of these improvements should be completed by the latter part of the calendar year.

In line with the board's action of a year ago, an addition of \$250,000 has been made to the general depreciation fund, making \$500,000 so far set aside under this head. In connection with this appropriation, it should be borne in mind that the expense of all repairs and replacements made during the year, in order that the manufacturing plants might be kept up to their former high state of efficiency, was charged to operating costs. The contingent, relining and rebuilding funds have also been largely increased during the year, and it is the opinion of the board that the appropriations made will fully cover any contingency that will likely arise in the near future tending to affect the valuation of either the real or personal property.

Owing to the growing tendency on the part of finished material prices to seek a more consistent level as compared with raw material prices, the indications are that the conditions that have prevailed over the last two years will to some extent be reversed, and higher relative profits will be derived from the finishing end of the business.



## Car Efficiency.

### Efforts of Railroads to Improve Freight Service.

Statistics of the Interstate Commerce Commission, confirmed by data published by the American Railway Association, show that the average freight car only travels throughout the year a distance equivalent to 25 miles per day. This is not much greater than the daily average of a dray in active service, and is less than the distance covered by canal boat, a river barge, a stage coach or a sailing ship. This low rate of efficiency of the freight car is responsible for car shortages and "famines," as the present equipment of American railroads would be ample to take care of twice the volume of traffic which they now carry if it were possible to double the present average of 25 miles per day.

Approximately two-thirds of the total mileage is made by loaded cars, the movement of empties representing about one-third of total car mileage. More than half of the empty hauls, however, are furnished by coal cars, stock cars, flats and other special equipment which as a rule can be loaded only in one direction. Box cars are seldom moved very far without a load, as traffic on the most important systems shows a remarkable tendency to equalize in both directions. The low average of car efficiency is the greatest question that confronts railroad men to-day, and shippers have more than a remote interest in it, as well founded predictions are already being made that the country will experience another severe period of car shortage the coming winter.

#### Committee on Car Efficiency at Work.

The railroads are doing all that they can to improve the situation and protect the shipper against lack of cars. The American Railway Association, composed of the executive and operating officials of practically all the railroads of the United States are spending more than \$100,000 per year in an investigation of the general question of car efficiency. This work is in charge of the Committee on Car Efficiency of the association, whose chairman, Arthur Hale, general superintendent of transportation of the Baltimore & Ohio, is recognized as the leading expert of the carriers on general questions relating to car management. The increase from 25 to 50 cents in the per diem rate which each railroad pays for the use of cars belonging to other roads was promoted by Mr. Hale as a step in securing prompt movement of equipment, and in many other directions the roads are adopting new rules which they hope will increase the average daily movement.

Car service rules are being tightened up all over the country, and wherever State laws or the rules of State commissions allow the shipper more than 48 hr. for loading or unloading, the railroads are filing with the Interstate Commerce Commission car service tariffs which they enforce, with the 48-hr. rule on all interstate shipments. The Southern roads are refusing to accept export shipments until the exporter has booked his merchandise for specific sailing. At Galveston elaborate rules to govern the movement of cotton have been adopted, in the hope that the serious congestion that prevailed last winter may be avoided. At Baltimore car service rules have been enforced on coal awaiting vessels for export or coastwise movement, and similar rules have been tried the past summer at Ohio Lake ports, on Lake shipments of coal.

While the railroads are drawing the lines more closely on the use of cars by the shipper, they are working out similar regulations among themselves which the public does not hear about, especially to prevent the abuse by one road of the equipment of other roads. They have to proceed very slowly in this work, as it is about as difficult to make railroad traffic obey rules as to make water run up hill. The manufacturer or merchant can give orders in his establishment which his people will obey promptly, and the outside world is not concerned in what goes on behind his own walls, but it is different with a railroad. It comes in direct contact with the public at every foot of its right of way, and the public interest must be considered, as well as the more direct interest of the shipper, in everything that a railroad does or attempts to do. It

takes a long time for a strong engine to get a heavy train under way, and the progressive men in the railroad world find that it takes a correspondingly long time to get their plans under way for the improvement of the service.

#### Legislative Interference with Railroad Operations.

Any business man can understand the instinctive fear that railroad men have of legislation that might disorganize this vast and delicately balanced machine. The public of course has rights which must be respected, and it is proper that these rights should be clearly set forth in reasonable, conservative legislation; but there is a difference between laws to protect the public and schemes for operating railroads by legislation. The whole trouble is that once that intangible force called "public sentiment" gets under way, it is not content with protecting the rights of the public. It wants to run things. No railroad man who realizes his duty to the nation has any fear of laws to protect the citizen against abuses of railroad promotion, financiering or management. The difficulty begins when a sovereign State—Texas, to give a concrete example—commits legislative larceny by declaring that certain favored shippers shall be allowed 10 days to unload certain commodities (rice and cotton seed products), when the cars that are so detained are in a sense the common property of the nation. No one knows where these abuses of legislative power may end, for a law once enacted is seldom repealed, and becomes the foundation for other laws, superimposed like the dead strata of some ancient ruin, but retaining all their life and virulence.

The leading railroad systems are working out their own plans to promote prompt movement of cars, and they all show a considerable gain in the past year in the daily average per car. One of the largest and most congested systems in the country began work two years ago. At that time its average daily movement per car was only 19 miles, and it was quite generally believed that low car efficiency was a necessary incident of heavy traffic. As an experiment, a special force of inspectors was put at work, to travel over the system and watch the movement of traffic, backed up by a strong office organization. In two years the average daily movement has been increased from 19 to 27 miles, a gain of 40 per cent.; and the old theory that efficiency declines as traffic increases in volume has been consigned to limbo. One point gained by this railroad, which is of special interest to shippers, is that the average delay of a car at division terminals or yards has been reduced from 18 to 6 hours. On a long haul a saving of a few hours on each division is an important item.

#### The "Maximum Load" No Longer Enforced.

Another theory in railroad operation that has gone overboard recently, on lines east of the Mississippi, is the "maximum load" idea. Some years ago it was generally believed by railroad men that the most economical way to handle freight was to rate each engine at its maximum hauling capacity, and send out an engine and crew from a division yard whenever a full load was ready. It has been found, however, that a heavy train takes twice as long to cover a division, in average service, as a lighter train, and there is too much interference between passenger and freight trains when the latter do not run on regular schedules. The Eastern roads are going back to the old plan of running light trains on daily schedules, and they find it more economical in the end, as well as more satisfactory in avoiding congestion.

The railroads have a keen self-interest in promoting car efficiency. In the past year the earnings of nearly all the roads have been limited by their ability to supply cars to shippers, and the car shops are not able to add more than three to five per cent. a year to the equipment in service, after providing for renewals or replacements. A gain of one mile per day in the average movement of all the cars in the United States would be equal to the average annual increase in capacity which is furnished by the car shops. If all the roads could make the gain of 40 per cent. in efficiency which one large system has accomplished in two years, it would be equal to what they have gained in capacity in the past 10 or 12 years by the purchase of new cars.

## NEWS OF THE WORKS.

### Iron and Steel.

McDowell & Co., second-hand machinery dealers, Allegheny, Pa., have bought the rolling mill plant formerly operated by Mitchell, Tranter & Co., at Covington, Ky., but which was taken over by the Republic Iron & Steel Company upon its organization. The plant contains five mills, consisting of 8, 10 and 20 in. bar mills, 20-in. muck bar mill and a 26-in. plate mill and about 20 shears. It also contains a forge and two 5-ton hammers, the plant covering about 10 acres of ground. Since its acquisition by the Republic Company the plant was operated steadily until 1906, but in carrying out the policy of that company in not operating isolated plants it has been sold to the above parties. The purchasers will dismantle most of the plant, but several of the bar mills will likely be removed and erected in another location.

Duquesne Furnace No. 1 of the Carnegie Steel Company was blown out for repairs on August 4, and Edgar Thomson Furnace K was blown in on August 9. All the Edgar Thomson group was active on September 1. The only furnaces in the Pittsburgh District out of blast on that date were one Duquesne and one Clairton.

The furnace of the Detroit Iron & Steel Company on Zug Island, Detroit, Mich., was blown in August 14 after relining.

One of the four older furnaces of the Bethlehem Steel Company, South Bethlehem, Pa., was blown out for repairs on August 1 and was still idle on September 1. The new No. 5 Furnace has been increasing its output. Foundation work is under way for a second 500-ton furnace.

The furnace of the New Jersey Zinc Company at South Bethlehem, Pa., was blown out for repairs August 17.

The Youngstown Sheet & Tube Company's Alice Furnace at Sharpsville, Pa., was blown out for repairs August 31.

Pickands, Mather & Co.'s Ella Furnace, West Middlesex, Pa., was blown out for repairs August 7 and was still inactive September 1.

The blast furnace of the Pulaski Iron Company, Pulaski City, Va., which went out for relining August 2, resumed operations September 3.

The blast furnace of the West End Furnace Company, Roanoke, Va., has been out of blast since August 6 for relining and general repairs.

The blast furnace of the Norton Iron Works, Ashland, Ky., went out on August 15 for repairs.

Hannah Furnace of the Republic Iron & Steel Company, Youngstown, Ohio, has been out for repairs since August 8.

The Sloss-Sheffield Steel & Iron Company's Philadelphia Furnace at Florence, Ala., was blown in August 11 after a long idleness.

The No. 2 Furnace of the Bessemer, Ala., group of the Tennessee Coal, Iron & Railroad Company was blown in August 10.

Sam Lanham Furnace, Rusk, Texas, was banked for four days in August because of short supply of coke, and for most of the month operations were retarded from the same cause.

The Virginia Iron, Coal & Coke Company's Dora Furnace, Pulaski City, Va., has been out of blast since August 1.

The plant of the Youngstown Iron & Steel Roofing Company, Youngstown, Ohio, which has been shut down for some time, owing to an accident, was started up in full last week. Remarkably fast time was made in repairing the damage to the plant, which was put in operation ahead of scheduled time.

The two new blast furnaces being erected at the Ohio Works of the Carnegie Steel Company at Youngstown, Ohio, are expected to be ready for blast next January. Twelve new 50-ton open hearth furnaces are also being built at these works, which will probably be ready for operation in February. A number of finishing mills are also being added to the plant.

One furnace of the Sheffield Coal & Iron Company, Sheffield, Ala., was in blast on September 1, the other of the two effective stacks, which went out on July 20 for relining, being still under repair.

### General Machinery.

The Pennsylvania Railroad has recently added to the equipment of its Altoona shops two Northern 12½-ton 3-motor electric traveling cranes with 54 ft. span.

Edgar A. Bienenstock, Drexel Building, Philadelphia, Pa., has sent out a list of tools in stock covering a large number of planers, lathes, presses, turret lathes, shapers, hammers, boring machines, punches, shears, gear cutters and threading machines of many standard makes.

The Western Allegheny Railroad, Pittsburgh, Pa., is about to install a small repair shops.

The Velte Foundry & Machine Company, Home street and Allegheny Valley Railway, Pittsburgh, Pa., has recently installed more punching and shearing machinery, which with its present equipment will permit this company to manufacture side blow converters for making steel castings from 1 to 2 tons capacity.

These converters will be furnished to supply the demand of small steel casting plants, and will be only a side line with the company in connection with its other products.

A large order for railroad equipment has just been placed with the General Electric Company, Schenectady, N. Y., by the Utah Light & Railway Company, Salt Lake City. The latter company is planning large extensions to its present 90 miles of track and will install 50 new cars. The contract calls for 50 complete quadruple equipments consisting of 200 GE-80 40-hp. motors with K-28 controllers. In addition the company has ordered 74 GE-80 motors, with extra controllers, circuit breakers, rheostats, &c., for the re-equipment of old cars.

### Power Plant Equipment.

Work is progressing rapidly on the new gas engine plant being erected by the Turner-Fricke Company near Sharon, Pa. All the equipment has been placed and will be installed as soon as it arrives, the buildings being about ready. The main building is 125 x 200 ft.

The Commissioners of Buildings of Monroe County, George L. Meade, chairman, Rochester, N. Y., will receive bids until September 30 for a 150-hp. internal fired boiler for the Monroe County power house and an electric light plant for the Court House at Rochester.

The Board of Trustees of Jacksonville, Fla., will receive bids until October 4 for one 15-kw. steam turbo generator and 50-kw. motor driven exciter.

The Board of Public Works, Wyandotte, Mich., will receive bids until September 17 for one 300-hp. water tube boiler, 240-kw. generating unit and other supplies.

The Copper Range Electric Company, Painsdale, Mich., is preparing plans for a new power plant, to be located about 5 miles from that town and to be equipped with two 200-kw. generating units and 1500 hp. of water tube boilers. Three substations will be built, each of which will be equipped with three 400-kw. transformers. The plant will furnish electricity for the Copper Range Consolidated Company's mines at Painsdale, Trimountain and Baltic. W. A. Rankin is electrical engineer, and John M. Wagner, purchasing agent, with headquarters at Houghton, Mich.

### Foundries.

The Nortmann-Duffke Foundry Company, Milwaukee, Wis., has purchased a plot of land, 90 x 120 ft., adjoining its plant in Layton Park, upon which it will extend its works. The company has just finished an addition of 40 x 100 ft. to its pressed steel tank department.

The Pittsburg Foundry & Machine Company, Pittsburg, Texas, has been incorporated with a capital stock of \$50,000 by P. W. Thomsell, H. D. Knight, H. C. Hargrove, T. F. Patterson, and E. F. Garrison.

The Terrell Foundry & Machine Company, Terrell, Texas, whose plant was recently destroyed by fire, will erect a new foundry, 50 x 100 ft., for the equipment of which it will immediately require one 32-in. cupola, one jib crane, 20 ft., 30-ft. arm; one elevator, 5 x 6 ft., 12-ft. lift, 2 tons capacity; ladles of from 150 to 200 lb. capacity, one worm gear ladle of 4 tons capacity, shovels, brushes, riddles, one 3-hp. and one 7½-hp. motor, &c.

The Southern Pipe & Foundry Company, Knoxville, Tenn., incorporated with a capital stock of \$50,000, recently took over the plant of the Tennessee Foundry & Machine Company, expending about \$35,000 in making improvements. W. H. Gass, president, is also president of the Knoxville Banking & Trust Company, one of the largest institutions in the Knoxville section. H. M. Hawk is treasurer and general manager; F. S. Mead, secretary, and J. G. Simpson, superintendent.

The Allegheny Valley Malleable Iron Company, New Kensington, Pa., expects to have its new plant in operation in the early part of October, when it will be open for work of all descriptions in the malleable line. As soon as it has completed the building of its present plant the company expects to begin the construction of another foundry, 80 x 440 ft., which will enable it to double its output. The present foundry has a capacity of from 35 to 50 tons a day, which will be doubled by early spring.

### Fires.

The factory of the Wemple-Gravely Tobacco Company, Danville, Va., was burned September 6, with a loss of about \$75,000.

The pumping plant of the McCook Water Works, McCook, Neb., was destroyed by fire August 30.

The plant of the Wahpeton Iron Company, Wahpeton, N. D., was recently damaged \$5000 by fire.

The plant of the Berkley Ice Company, Berkley, Va., one of the largest artificial ice plants in that vicinity, was destroyed by fire September 9, the loss being about \$50,000.

The plant of the Standard Brick & Tile Company, New Glasgow, N. S., was burned September 6. The loss is placed at \$200,000.

The plant of Nichols & Stone, Gardner, Mass., chair manufacturers, was burned September 9, with loss of \$100,000.

The electric light plant at the University of Mississippi,



Oxford, Miss., was burned September 3, the loss being about \$10,000.

#### Hardware.

The Lewis Mfg. Company has succeeded L. R. Lewis, Cortland, N. Y., and will continue the manufacture of the Perfection milk cooler and aerator, and the Farmers' Favorite feed cooker and agricultural boiler.

The Glen Mfg. Company, Elwood City, Pa., manufacturer of Hartman steel picket fences and Glen folding mats, has lately completed a new building of fireproof construction, 30 x 50 ft., to be used as a paint house.

#### Miscellaneous.

The American Steel & Wire Company, after having in operation a 12,500-hp. We-Fu-Go water softening and purifying system for six months at its Donora Works, has placed an order with the Wm. B. Scaife & Sons Company, Pittsburgh, for a 25,000-hp. system, consisting of eight large treating and settling tanks and eight mechanical gravity filters, for its Newburgh Steel Works, at Cleveland, Ohio. The Scaife Company's methods and apparatus for purifying water supplies enable steam users to effect a decided saving in the cost of operating boilers, and it has been making a large number of installations of Scaife and We-Fu-Go systems. Other sales reported are: The Rochester & Pittsburgh Coal & Iron Company, Punxsutawney, Pa., 2250 hp., third order; Shenango Furnace Company Sharpsville, Pa., 8000 hp.; Armstrong Cork Company, Oakdale, Pa., 500 hp.; Fostoria Glass Company, Moundsville, W. Va., 350 hp.; Allen & Wheeler Company, Troy, Ohio, 200 hp.; Stone & Webster Engineering Corporation, Boston, Mass., 2500 hp. for Jacksonville Electric Company, Jacksonville, Fla.; Paterson Parchment Paper Company, Passaic, N. J., 150,000 gal. per hour We-Fu-Go continuous system.

The White Metal Company, formerly of New York, has removed its manufacturing plant from that city to Buffalo, N. Y., where it has secured factory premises at Niagara street and West Delavan avenue. It will manufacture aluminum castings and white metal goods. Charles T. Van Steenburgh is president and Jno. C. Werk treasurer.

The Pittsburgh Gage & Supply Company, Pittsburgh, Pa., has installed White Star continuous oiling systems in the engine rooms of the Fitchburg Yarn Company, Fitchburg, Mass.; Indianapolis Light & Traction Company, Scottsburg, Ind.; Berwind-White Coal Mining Company, Windber, Pa.; Tennessee Coal, Iron & Railroad Company, Ensley, Ala.; Seconnet Mills, Fall River, Mass.; American Sheet & Tin Plate Company, Vandergrift, Pa.; American Bottle Company, Newark, Ohio; Bethlehem Steel Company, South Bethlehem, Pa.; Diamond Rubber Company, Akron, Ohio. The great saving in lubricating oil, requiring but one handling by human means from barrel to system, its constant use, being cleaned by the White Star filter after passing through the bearings, and thence used over and over again until actually worn out, renders the use of an oiling system an actual necessity in every up to date power plant.

Kinnear sheet metal radiators, made by the Pressed Radiator Company, Pittsburgh, Pa., have been adopted for the 41-story Singer Building, being erected in New York by the Singer Mfg. Company.

The Westinghouse Air Brake Company has recently made some large additions to its plant at Wilmerding, Pa. These consist of a blacksmith shop, 101 x 107 ft.; pattern shop, 67 x 195 ft., and a carpenter shop, 60 x 213 ft. These new buildings give the company a total floor space of 732,056 sq. ft., or a little over 16 acres, and over 4000 men will be employed.

The Flour City Ornamental Iron Works, Minneapolis, Minn., has let contract for a new brick fitting shop, 60 x 140 ft., including new equipment, at a cost of \$15,000.

The American Electrical Heater Company, Detroit, Mich., has purchased property on the corner of Cass and Vienna avenues, 156 x 298 ft., on which it intends to erect a plant to cost \$50,000. The company does not intend to build the new plant until next spring.

The Standard Roller Bearing Company, Philadelphia, Pa., has recently made many large additions to its plant and now has the largest works of its kind in the world. The buildings extend over ½ mile of ground from end to end, having a floor space of over 500,000 sq. ft., the company now employing over 1500 men.

**Opening Iron Mines in Southern Italy.**—Announcement is made by *Elettricità* of the confirmation by the Italian Minister of Finance of an agreement between the Italian Government and a private company with a capital of \$4,000,000 for the exploitation of the iron mines in southern Italy. A recent act permits of taking 200,000 tons of ore from the Elba mines. For two years the matter has been held up by an attempt to harmonize the views of ironmasters in northern Italy with those of the southern Italian interests. The threat of the new company to withdraw its capital and sell the mining interests already acquired induced the Minister, urged by the Mayor of Naples, to settle the business, which had been

hampered by various parties interested in blast furnaces. The signing of the contract is of importance to Naples, as the company will now proceed to erect a large plant for smelting and rolling iron at the port of Baguoli.

### The New Donora Billet Mill of the Carnegie Steel Company.

This mill is to have sufficient capacity to take care of the entire product of the present 40-in. blooming mill, and finish it as 4 x 4 in. billets for delivery to the American Steel & Wire Company's plant at Donora, and for the 4 x 4 in. billet requirements of the Carnegie Steel Company.

The bloom is received 8 x 11 in. from the present blooming mill shears on a motor driven approach table, on which it is held until sent to the mill. From here the bloom is passed to the front mill table. This table is motor driven, with 13 rollers, 47 ft. center to center end rollers. The front and back tables are operated together by means of hydraulic cylinders and bell cranks in such a manner as to feed the piece successively into the seven passes of the three-high mill and finally deliver it to the intermediate table. The back table is motor driven, with 11 rollers, 39 ft. center to center of end rollers.

The mill proper is of the three-high type, 30 in. center to center of pinions. It is of the standard type of construction for such mills and will run at the rate of 80 rev. per min. The engine is of the tandem compound condensing type, with Corliss valve gear, and equipped with a 110 ton flywheel. The size of the engine is 46 and 80 x 60 in. From the back mill table the finished billet is passed to a motor driven intermediate table, with 13 rollers, 44 ft. center to center of end rollers. From this table the piece is run out on to the motor driven shear table, which has 23 rollers, 82 ft. center to center of end rollers.

The shear is of the double type, hydraulic, and is actuated by a double acting, steam driven intensifier. This shear will cut the billets in lengths from 24 in. to 30 ft. Behind this shear is a double shear table with four rollers at 8½ in. centers, which is coupled up with one roller in front of the shear and driven by chain from the front shear table. The back shear table proper has 24 rollers, and is 20 ft. center to center of end rollers. From this table the piece passes to the run out table, which is 119 ft. long, with rollers at 10 in. centers, by which it is delivered to the hot bed tables. The hot bed tables are 115 ft. 10 in. long. The transfers to the hot bed proper are operated by hydraulic cylinders.

The hot bed consists of three parts, built up of cast iron and structural work, on which the billets will be allowed to cool and may be inspected. From these hot beds the product may be handled by magnets, either for shipment or for stocking in the ample stockroom provided under the same craneway. The total length of the beds from the center line of the tables is 60 ft.

A 40 ton crane runs over the mill engine, a 40 ton crane over the mill, and three 10 ton cranes run over the hot beds.

The mill buildings were furnished by the American Bridge Company; the mill proper and lifting tables by the Pennsylvania Engineering Works, and the mill engine by the Wisconsin Engine Company. The other tables were furnished by the Carnegie Steel Company and the American Bridge Company, Pencoyd Works.

It has been decided to strengthen several sections of the two Battery subway tubes under the East River, New York, by lining them with what will be practically another tube of reinforced concrete for a distance of 2000 yd. William Barclay Parsons, who was chief engineer of the Rapid Transit Commission, pronounces the tunnel entirely safe. It was found in May that parts of the tubes which had been laid in sandy portions of the bottom of the river had flattened, and in remedying these defects it was decided to drive piles in the bed of the river.



## The Iron and Metal Trades

The statistics of the production of Pig Iron collected by *The Iron Age* show that the output in August fell about 5000 tons below that of July, the production of Anthracite and Coke Iron in August having been 2,250,410 gross tons as compared with 2,255,660 tons in July, both being months of 31 days. The capacity of the furnaces active on September 1 was only 508,568 tons per week as compared with 513,471 tons on August 1 and 528,170 tons, the record, on July 1. In spite of the blowing in of new furnaces the production does not therefore develop.

There is a more cheerful feeling in the Eastern Pig Iron trade, due to the fact that there has been increased activity, some good concerns having bought not only for delivery during the last quarter, but also during the first quarter of next year. The movement has been most marked in Basic Pig, but has been observable also in Forge and Foundry Irons. The earlier sales were made at the lowest prices, close to \$18.50 delivered for Basic, but there was not enough available at that figure and buyers have had to pay \$19 for additional purchases. It is estimated that the purchases in the Eastern markets aggregate about 50,000 tons. In the West and South buyers and sellers are still apart.

Reports from Cleveland Ore shippers vary widely as to the threatened shortage of Ore. Some of them have notified their customers that they will be forced to cut down their shipments, and in the case of some it is particularly the Bessemer grades which are affected. However, it must be remembered that the Ore purchases were based originally on the expectation of a demand at the rate of the summer. How much the winter and spring will cut this down is a question. That a smaller tonnage will be used than was originally estimated is averred by some leading steel interests.

A fair amount of Structural Material has been placed, including about 4000 tons for the balance of the Blackwell's Island bridge approach. Some of the railroads are figuring on bridge work and terminal work, among them the St. Paul, the Erie and the New York Central. The plans are being made for two large bridges at St. Louis, which together will need 23,000 tons of material. The work will not come out until next year, however. Chicago has buildings under negotiations involving about 10,000 tons.

To the Cast Iron Pipe trade the successful placing of the city bonds is a significant event. Orders aggregating from 12,000 to 15,000 tons of Cast Iron Pipe are being looked forward to. Kansas City has contracted for 5000 tons.

Heavy railroad lists of Old Material are coming out in Chicago, the total being 17,000 tons. In the East the feeling in the Scrap trade is a trifle better.

The Copper market is utterly demoralized. The effort to induce buying by naming 18c. for Electrolytic Copper has been a flat failure and the conviction is growing in the trade that there will be no halt until 15c. is reached. Electrolytic Copper has been sold for shipment abroad at the equivalent of 16½c., and is now being offered at 16¼c. without takers.

## A Comparison of Prices.

Advances Over the Previous Month in Heavy Type, Declines in Italics.

At date, one week, one month and one year previous.

|   | Sept. 11, 1907. | Sept. 4, 1907. | Aug. 8, 1907. | Sept. 12, 1906. |
|---|-----------------|----------------|---------------|-----------------|
| <b>PIG IRON, Per Gross Ton:</b>             |                 |                |               |                 |
| Foundry No. 2, Standard, Philadelphia ..... | \$20.75         | \$21.00        | \$22.00       | \$20.50         |
| Foundry No. 2, Southern, Cincinnati .....   | 21.25           | 21.75          | 23.25         | 18.75           |
| Foundry No. 2, Local, Chicago..             | 24.50           | 24.50          | 24.50         | 19.75           |
| Bessemer, Pittsburgh.....                   | 22.90           | 22.90          | 22.90         | 19.60           |
| Gray Forge, Pittsburgh.....                 | 21.40           | 21.40          | 21.90         | 18.35           |
| Lake Superior Charcoal, Chicago             | 27.00           | 27.00          | 27.50         | 20.00           |

|   |       |       |       |       |
|---|-------|-------|-------|-------|
| <b>BILLETS, &amp;c., Per Gross Ton:</b> |       |       |       |       |
| Bessemer Billets, Pittsburgh...         | 29.50 | 29.00 | 29.50 | 28.00 |
| Forging Billets, Pittsburgh....         | 33.00 | 33.00 | 33.00 | 34.00 |
| Open Hearth Billets, Phila.....         | 31.00 | 31.50 | 31.75 | 30.50 |
| Wire Rods, Pittsburgh.....              | 36.00 | 36.00 | 36.00 | 34.00 |
| Steel Rails, Heavy, Eastern Mill        | 28.00 | 28.00 | 28.00 | 28.00 |

|                                     |       |       |       |       |
|-------------------------------------|-------|-------|-------|-------|
| <b>OLD MATERIAL, Per Gross Ton:</b> |       |       |       |       |
| Steel Rails, Melting, Chicago...    | 17.00 | 17.00 | 17.00 | 16.50 |
| Steel Rails, Melting, Phila.....    | 16.75 | 16.75 | 17.50 | 18.00 |
| Iron Rails, Chicago.....            | 20.25 | 20.25 | 20.75 | 23.50 |
| Iron Rails, Philadelphia.....       | 20.50 | 20.50 | 21.50 | 24.00 |
| Car Wheels, Chicago.....            | 24.50 | 24.50 | 24.50 | 20.00 |
| Car Wheels, Philadelphia.....       | 23.00 | 23.00 | 25.00 | 17.50 |
| Heavy Steel Scrap, Pittsburgh..     | 17.75 | 17.75 | 17.75 | 16.75 |
| Heavy Steel Scrap, Chicago....      | 14.75 | 14.75 | 15.50 | 16.50 |
| Heavy Steel Scrap, Philadelphia     | 16.50 | 16.50 | 17.00 | 17.75 |

|  |        |        |        |        |
|--|--------|--------|--------|--------|
| <b>FINISHED IRON AND STEEL, Per Pound:</b> |        |        |        |        |
|  | Cents. | Cents. | Cents. | Cents. |
| Refined Iron Bars, Philadelphia.           | 1.85   | 1.85   | 1.85   | 1.73½  |
| Common Iron Bars, Chicago....              | 1.78   | 1.78   | 1.78   | 1.71½  |
| Common Iron Bars, Pittsburgh.              | 1.70   | 1.70   | 1.70   | 1.60   |
| Steel Bars, Tidewater, New York            | 1.86   | 1.86   | 1.86   | 1.64½  |
| Steel Bars, Pittsburgh.....                | 1.60   | 1.60   | 1.60   | 1.50   |
| Tank Plates, Tidewater, New York           | 1.86   | 1.86   | 1.86   | 1.74½  |
| Tank Plates, Pittsburgh.....               | 1.70   | 1.70   | 1.70   | 1.60   |
| Beams, Tidewater, New York..               | 1.86   | 1.86   | 1.86   | 1.84½  |
| Beams, Pittsburgh.....                     | 1.70   | 1.70   | 1.70   | 1.70   |
| Angles, Tidewater, New York..              | 1.86   | 1.86   | 1.86   | 1.84½  |
| Angles, Pittsburgh.....                    | 1.70   | 1.70   | 1.70   | 1.70   |
| Skelp, Grooved Steel, Pittsburgh           | 1.85   | 1.85   | 1.85   | 1.57½  |
| Skelp, Sheared Steel, Pittsburgh.          | 1.95   | 1.95   | 1.95   | 1.60   |

|   |        |        |        |        |
|---|--------|--------|--------|--------|
| <b>SHEETS, NAILS AND WIRE, Per Pound:</b> |        |        |        |        |
|   | Cents. | Cents. | Cents. | Cents. |
| Sheets, No. 27, Pittsburgh.....           | 2.50   | 2.50   | 2.50   | 2.40   |
| Wire Nails, Pittsburgh.....               | 2.05   | 2.05   | 2.00   | 1.85   |
| Cut Nails, Pittsburgh.....                | 2.10   | 2.10   | 2.10   | 1.75   |
| Barb Wire, Galv., Pittsburgh...           | 2.50   | 2.50   | 2.45   | 2.30   |

|                                 |        |        |        |        |
|---------------------------------|--------|--------|--------|--------|
| <b>METALS, Per Pound:</b>       |        |        |        |        |
|                                 | Cents. | Cents. | Cents. | Cents. |
| Lake Copper, New York.....      | 17.00  | 18.12½ | 19.50  | 19.12½ |
| Electrolytic Copper, New York.. | 16.50  | 17.50  | 19.00  | 18.87½ |
| Spelter, New York.....          | 5.35   | 5.50   | 5.80   | 6.05   |
| Spelter, St. Louis.....         | 5.20   | 5.37½  | 5.75   | 5.95   |
| Lead, New York.....             | 4.75   | 5.12½  | 5.15   | 5.90   |
| Lead, St. Louis.....            | 4.67½  | 4.95   | 5.00   | 5.80   |
| Tin, New York.....              | 37.00  | 37.12½ | 38.60  | 40.30  |
| Antimony, Hallett, New York...  | 10.00  | 9.00   | 10.00  | 24.00  |
| Nickel, New York.....           | 45.00  | 45.00  | 45.00  | 45.00  |
| Tin Plate, 100 lb., New York... | \$4.09 | \$4.09 | \$4.09 | \$3.94 |

## Chicago.

FISHER BUILDING, September 11, 1907.—(By Telegraph.)

The events of the week under review, though lacking in developments of striking interest, reflect a state of general industrial activity, that leaves but little room for a pessimistic opinion of future trade conditions. In all lines of finished material specifications are supplied in adequate volume to fill mill rolling schedules well in advance. Construction work in factory, office, warehouse and bridge building is especially active, and plans completed and under way contemplate a large tonnage of Structural Material. The most notable of these include two bridges across the Mississippi at St. Louis, for the construction of which approximately 23,000 tons will be required. Designs for both are now in course of preparation, but it is probable that the larger of the two will not be ready for Steel estimates until next year. Structural requirements for four Chicago buildings now up to or approaching closure foot up a total of 10,600 tons. Added to the demand from such sources is a large tonnage in specifications and orders coming in from many manufacturing interests. It is not surprising, therefore, to learn that in the structural departments of Western mills new business is overlapping the output. Except in Light Rails, which continue in good demand, there is little doing in any of the Rail sections. The Illinois Steel Company's new mill at South Chicago will be ready to begin rolling in a few weeks, when its output in Rails and Structural Shapes will be largely increased. Despite

the heavy shipments of Tubular Goods being made by the mills, small Pipe and the commoner sizes of Boiler Tubes are still scarce. The reduction of Copper to 18c. has so far failed to arouse the active business it was expected would result from this concession. Firmness of the established price will have to be demonstrated before purchases covering future requirements will be extensively made.

**Pig Iron.**—Desultory buying of carload and slightly larger lots constitutes the week's record of transactions, which is, in this respect, not materially different from that of several preceding weeks. With no substantial increase in demand there is notwithstanding a little stronger feeling of confidence apparent among the furnace interests. In some quarters this has found expression in a firmer holding to current quotations and less inclination to volunteer concessions in an effort to stimulate buying. At the same time an offer of good tonnage, especially for forward delivery, would not be rejected at a shade of 50c. a ton below present holdings. Thus, while \$18.50, Birmingham, for No. 2 is regarded as the ruling fourth quarter price, a desirable order at \$18 would scarcely be declined. A sale of 400 tons of No. 2 for first quarter delivery at \$17.50, Birmingham, is noted. There is, however, little inquiry, and only an isolated purchase here and there is reported for this period. Malleable Bessemer is extremely quiet and practically without movement. Northern Foundry Iron is nominally unchanged, and while \$23.50 to \$24, Chicago, is currently quoted for No. 2 on fourth quarter requirements the actual price on round lots would be subject to negotiation. Cancellations are infrequent, but judging from the number of requests now being received for holdup of scheduled shipments it is likely that delinquency of shipment would bring them out in greater number. The following prices are for September delivery, f.o.b. Chicago:

|  |                    |
|--|--------------------|
| Lake Superior Charcoal.....            | \$27.00 to \$27.50 |
| Northern Coke Foundry, No. 1.....      | 25.00 to 25.50     |
| Northern Coke Foundry, No. 2.....      | 24.50 to 25.00     |
| Northern Coke Foundry, No. 3.....      | 23.50 to 24.00     |
| Northern Scotch, No. 1.....            | 25.50 to 26.00     |
| Ohio Strong Softeners, No. 1.....      | 25.50 to 26.00     |
| Ohio Strong Softeners, No. 2.....      | 25.00 to 25.50     |
| Southern Coke, No. 1.....              | 23.85 to 24.35     |
| Southern Coke, No. 2.....              | 23.35 to 23.85     |
| Southern Coke, No. 3.....              | 22.85 to 23.35     |
| Southern Coke, No. 4.....              | 22.35 to 22.85     |
| Southern Coke, No. 1 Soft.....         | 24.85 to 25.35     |
| Southern Coke, No. 2 Soft.....         | 24.35 to 24.85     |
| Southern Gray Forge.....               | 20.85 to 21.35     |
| Southern Mottled.....                  | 20.85 to 21.35     |
| Malleable Bessemer.....                | 24.40 to 24.90     |
| Standard Bessemer.....                 | 24.40 to 24.90     |
| Jackson Co. and Kentucky Silvery, 6 %  | 30.40 to 30.90     |
| Jackson Co. and Kentucky Silvery, 8 %  | 32.40 to 32.90     |
| Jackson Co. and Kentucky Silvery, 10 % | 34.40 to 34.90     |

(By Mail.)

**Billets and Rods.**—Beyond occasional sales of small lots of Forging Billets there is little movement noted in the market. Quotations are unchanged, at \$36 to \$38, Chicago. Transactions in Wire Rods are restricted by scarcity and are quoted at \$37 to \$38, Pittsburgh.

**Rails and Track Supplies.**—Developments of the week brought to light no new Rail tonnage bookings. It is, however, generally expected that before the month is ended the railroads will have actively begun making provision for requirements of the coming year, either by actual purchase or tonnage reservations. Light Rail orders continue plentiful, and deliveries from Western mills are not promised inside of 60 to 90 days. With the completion of the Illinois Steel Company's new South Chicago mill, which is now expected to be in operation within the next six weeks, the output of these sections will be considerably increased. Work of this character now done at the Bay View mills, Milwaukee, will then be transferred to the new mill, thereby furnishing additional capacity for the rolling of Structural Shapes. Spikes and Track Bolts are a little easier, and quotations are revised. We quote as follows: Angle Bars, accompanying Rail orders, 1907 delivery, 1.65c.; car lots, 1.75c. to 1.85c.; Spikes, 2.10c. to 2.20c., according to delivery; Track Bolts, 2.60c. to 2.70c., base, Square Nuts, and 2.75c. to 2.85c., base, Hexagon Nuts. The store prices on Track Supplies range from 0.15c. to 0.20c. above mill prices. Light Rails, 30 to 45 lb. sections, \$34; 25-lb., \$35; 20-lb., \$36; 16-lb., \$37; 12-lb., \$38, f.o.b. mill. Standard Sections, \$28, f.o.b. mill, full freight to destination.

**Structural Material.**—The contract for construction of the new La Salle Hotel building, Chicago, was let last week to the Geo. A. Fuller Construction Company. Revised specifications have reduced the Structural Material required about 900 tons below the estimates heretofore noted. The number of building projects constantly developing which are of interest to fabricators, is surprisingly large considering the difficulty that attends the financing of some other industrial operations. Among such plans now in hand is a factory building for Steger & Sons, Chicago, the Steel for which, 1700 tons, is now up for figures. The University Club, on whose new building \$1,000,000 is to be expended, will soon be asking prices on about 2000 tons; a new railroad bridge to span the St. Louis River at Duluth, will require 1500 tons, and in addition to the proposed bridge over the Mississippi at St. Louis referred to in last report, sound-

ings have been made and designs are being prepared by Ralph Modjeski, Chicago, for another similar structure at the same place to cost \$3,000,000, in which 18,000 tons will be used. Requirements for a mercantile and office building to be erected at Houston, Texas, comprises 2000 tons. Contracts closed by the American Bridge Company during the week included 400 tons for a depot train shed at Little Rock, Ark., and 800 tons for mine improvements at Bonne Terre and Doe Run, Mo. The Hansell-Elcock Company also secured a contract comprising about 900 tons for the construction of the Steele-Wedeles Company Building, Chicago. Western mills report an accumulating tonnage both in specifications and new business. Prices from store are quoted without change, at 2.05c. to 2.10c., and mill prices at Chicago are as follows: Beams and Channels, 3 to 15 in., inclusive, 1.88c.; Angles, 3 to 6 in., ¼-in. and heavier, 1.88c.; larger than 6 in. on one or both legs, 1.98c.; Beams, larger than 15 in., 1.98c.; Zees, 3 in. and over, 1.88c.; Tees, 3 in. and over, 1.93c., in addition to the usual extras.

**Plates.**—Besides an uninterrupted flow of specifications, some new business is developing in contracts for delivery through the first quarter of next year. Difficulty is still experienced in securing prompt shipment of Sheared Plates, but Universal Plates are now furnished with reasonable dispatch. We quote for future delivery as follows: Tank Plates, ¼-in. and heavier, wider than 6¼ and up to 100 in. wide, inclusive, car lots, Chicago, 1.88c. to 2.08c.; 3-16 in., 1.98c. to 2.18c.; Nos. 7 and 8 gauge, 2.03c. to 2.23c.; No. 9, 2.13c. to 2.33c.; Flange quality, in widths up to 100 in., 1.98c. to 2.08c., base, for ¼-in. and heavier, with the same advance for lighter weights; Sketch Plates, Tank quality, 1.98c. to 2.18c.; Flange quality, 2.08c. Store prices on Plates are as follows: Tank Plates, ¼-in. and heavier, up to 72 in. wide, 2.20c. to 2.30c.; from 72 to 96 in. wide, 2.30c. to 2.40c.; 3-16 in. up to 60 in. wide, 2.30c. to 2.40c.; 72 in. wide, 2.50c. to 2.65c.; No. 8, up to 60 in. wide, 2.35c. to 2.45c.; Flange and Head quality, 0.25c. extra.

**Sheets.**—It is now possible to secure Galvanized Sheets of ordinary size and gauge from some of the independent mills within four to five weeks, and Black and Blue Annealed Sheets are no longer subject to the unusual delay that retarded their movement some weeks back. The present demand, though not so great in volume as it was, is still satisfactory and mill bookings are being supplemented with new business of considerable tonnage. We quote mill shipments as follows, Chicago: Blue Annealed, No. 10, 2.03c.; No. 12, 2.08c.; No. 14, 2.13c.; No. 16, 2.23c.; Box Annealed, Nos. 17 to 21, 2.53c.; Nos. 22 to 24, 2.58c.; Nos. 25 to 26, 2.63c.; No. 27, 2.68c.; No. 28, 2.78c.; No. 29, 2.88c.; No. 30, 2.98c.; Galvanized Sheets, Nos. 10 to 14, 2.83c.; Nos. 15 and 16, 3.03c.; Nos. 17 to 21, 3.18c.; Nos. 22 to 24, 3.33c.; Nos. 25 and 26, 3.53c.; No. 27, 3.73c.; No. 28, 3.93c.; No. 30, 4.43c. Sheets from store: Blue Annealed, No. 10, 2.40c.; No. 12, 2.45c.; No. 14, 2.50c.; No. 16, 2.60c.; Box Annealed, Nos. 18 to 21, 2.70c.; Nos. 22 to 24, 2.75c.; No. 26, 2.80c.; No. 27, 2.85c.; No. 28, 2.95c.; No. 30, 3.35c.; Galvanized from store: Nos. 10 to 20, 3.20c. to 3.30c.; Nos. 22 to 24, 3.55c. to 3.60c.; No. 26, 3.65c. to 3.70c.; No. 27, 3.85c. to 3.95c.; No. 28, 4.15c.; No. 30, 4.65c. to 4.70c.

**Bars.**—With the anticipated requirements of large consuming interests practically covered by contracts already placed, orders for Steel Bars are restricted to small lots of small users. Prompted by former annoying experience in slow deliveries, buyers are specifying much farther in advance of actual needs than usual, and in consequence mill order books are well supplied. A demand that for the season is regarded as satisfactory is noted in Bar Iron. Quotations, Chicago, are as follows: Steel Bars, 1.78c., with half extras; Iron Bars, 1.78c.; Hoops, 2.18c., extras as per Hoop card; Bands, 1.78c., as per Bar card, half extras; Soft Steel Angles and Shapes, 1.88c., half extras. Store prices are as follows: Bar Iron, 2.10c. to 2.25c.; Steel Bars, 2c. to 2.10c.; Steel Bands, 2c., as per Bar card, half extras; Soft Steel Hoops, 2.35c. to 2.45c., full extras.

**Merchant Pipe.**—Large lap welded Pipe can now be furnished by the National Tube Company in about 30 days, but there is yet a marked scarcity in butt welded sizes. The heavy accumulation of tonnage on existing contracts precludes the hope of a clearance of order books before the first of the year. How far beyond that time the present condition of congestion will extend depends on the development of new business, which, though slightly reduced in volume, is still an important factor. The following mill discounts are quoted: Black Pipe, ¾ to 6 in., 71.2; 7 to 12 in., 68.2; Galvanized, ¾ to 6 in., 61.2. These discounts are subject to 1 point on the base. From store in small lots Chicago jobbers quote 68 per cent. on Black Steel Pipe, ¾ to 6 in. About 4 points advance above these prices is asked for Iron Pipe.

**Boiler Tubes.**—Railroad retrenchment necessarily stops short of curtailment in the maintenance of motive power equipment, a fact that is responsible for an active demand for Locomotive Tubes. Jobbers are becoming clamorous for shipment of Merchant Tubes to replenish depleted stocks. Mill quotations for future delivery on the base sizes are as follows: 2% to 5 in., in carload lots, Steel Tubes, 63.2;



Iron, 50.2; Seamless, 49.2; 2½ in. and smaller, and lengths over 18 ft., and 2½ in. and larger and lengths over 22 ft., 10 per cent. extra. Store prices are as follows:

|                       | Steel. | Iron. | Seamless. |
|-----------------------|--------|-------|-----------|
| 1 to 1½ in.....       | 35     | 35    | 35        |
| 1½ to 2½ in.....      | 50     | 35    | 35        |
| 2½ in.....            | 52½    | 35    | 35        |
| 2½ to 5 in.....       | 60     | 47½   | 47½       |
| 6 in. and larger..... | 50     | 35    | ..        |

**Merchant Steel.**—The principal makers of implement and special Steel Shapes report an unusual degree of forwardness in the furnishing of specifications. There is also a good demand in new orders for Tire sizes from jobbers and wagon manufacturers. Quotations are as follows: Planished or Smooth Finished Tire Steel, 1.98c.; Iron Finish, up to 1½ x ½ in., 1.93c.; Iron Finish, 1½ x ½ in. and larger, 1.78c., base; Channels for solid Rubber Tires, ¾ to 1 in., 2.28c., and 1¼ in. and larger, 2.18c.; Smooth Finished Machinery Steel, 2.18c.; Flat Sleigh Shoe, 1.93c.; Concave and Convex Sleigh Shoe, 2.08c.; Cutter Shoe, 2.46½c.; Toe Calk Steel, 2.33c.; Railroad Spring, 1.98c.; Crucible Tool Steel, 7¼c. to 8c., and still higher prices are asked on special grades. Shafting, 60 per cent. off in car lots; 55 per cent., less than car lots, Pittsburgh.

**Cast Iron Pipe.**—The 5000 tons of Pipe let last week by the Kansas City Water Works was taken by the United States Cast Iron Pipe & Foundry Company. All bids on the Columbus, Ohio, lot of 2500 tons, on which the same company was the lowest bidder at a recent letting, have again been rejected, and the requirements will be readvertised for a third letting. The contracts for installation have each time exceeded the sum appropriated for the purpose. No other lettings are in sight, and business in small lots is rather quiet. Buyers are evidently waiting for the softening of Pig Iron to be reflected in cheaper Pipe. Meanwhile the makers are busy on old contracts. We quote, per net ton, Chicago, as follows: Water Pipe, 4-in., \$38; 6 to 12 in., \$37; 16-in. and up, \$36, with \$1 extra for Gas Pipe.

**Coke.**—Fear of delays through inadequate car service, such as was experienced last year, has stimulated the placing of contracts for forward requirements. It is hoped by early shipments to forestall as far as possible such difficulty. Connellsville 72-hr. Foundry Coke is firmly held at \$3.15 to \$3.50, at ovens.

**Old Material.**—Notwithstanding the general inactivity that characterizes the movement, and the strong bear sentiment that has prevailed in Scrap, it has withstood the depressing influence and shows no appreciable decline. In fact, there are signs of reaction apparent, that, if developed according to present indications, will at least arrest further decline, and may result in a forward movement in the event of a renewal of buying interest. One of the results of high Pig Iron prices has been to increase the consumption of Melting Scrap. The necessity for husbanding new Iron stocks in times of scarcity led to experiments in mixtures, which largely increased the proportion of Old Material used. Recent railroad offerings have been absorbed without materially affecting the market, and considering the circumstances have brought fair prices. The lists now out comprise nearly 17,000 tons, and are as follows: Baltimore & Ohio, 8400 tons; Missouri Pacific, 1240 tons; Wisconsin Central, 750 tons; Southern Railway, 2700 tons; Santa Fe, 3000 tons; Wabash, 580 tons. Included in the Baltimore & Ohio list are 3500 tons of Rerolling Rails. We quote per gross ton, f.o.b. Chicago:

|   |                    |
|---|--------------------|
| Old Iron Rails.....   | \$20.25 to \$20.75 |
| Old Steel Rails, rerolling.....                               | 16.75 to 17.25     |
| Old Steel Rails, less than 3 ft.....                          | 17.00 to 18.00     |
| Relaying Rails, standard sections, subject to inspection..... | 26.00 to 28.00     |
| Old Car Wheels.....   | 24.50 to 25.00     |
| Heavy Melting Steel Scrap.....                                | 14.75 to 15.25     |
| Frogs, Switches and Guards, cut apart.....                    | 15.50 to 16.00     |
| Mixed Steel.....  | 11.00 to 11.50     |

The following quotations are per net ton:

|   |                    |
|---|--------------------|
| Iron Fish Plates.....                       | \$16.25 to \$16.50 |
| Iron Car Axles.....                         | 23.00 to 23.50     |
| Steel Car Axles.....                        | 20.00 to 20.50     |
| No. 1 Railroad Wrought.....                 | 14.25 to 14.75     |
| No. 2 Railroad Wrought.....                 | 13.50 to 14.00     |
| Railway Springs.....                        | 14.50 to 15.00     |
| Locomotive Tires, smooth.....               | 17.50 to 18.00     |
| No. 1 Dealers' Forge.....                   | 12.25 to 12.75     |
| Mixed Bushelling.....                       | 10.50 to 11.00     |
| Iron Axle Turnings.....                     | 10.50 to 11.00     |
| Soft Steel Axle Turnings.....               | 10.50 to 11.00     |
| Machine Shop Turnings.....                  | 10.50 to 11.00     |
| Cast Borings.....                           | 8.50 to 9.00       |
| Mixed Borings, &c.....                      | 9.00 to 9.50       |
| No. 1 Mill.....                             | 9.75 to 10.25      |
| No. 2 Mill.....                             | 8.75 to 9.25       |
| No. 1 Rollers, cut to Sheets and Rings..... | 10.00 to 10.50     |
| No. 1 Cast Scrap.....                       | 16.75 to 17.25     |
| Stove Plate and Light Cast Scrap.....       | 14.00 to 14.50     |
| Railroad Malleable.....                     | 16.00 to 16.50     |
| Agricultural Malleable.....                 | 14.75 to 15.25     |
| Pipe and Flues.....                         | 11.00 to 11.50     |

**Metals.**—Following the announced reduction in the price of Copper, no rush of buying ensued, but there is reason to believe that the reduction will result in a better movement of the metal, unless grounds for the suspicion of a lower level develop. Indications point to greater activity in some of the large Copper using industries, but it is not

clear, of course, that they are prepared to accept the present basis as a bed rock price. Some further decline in Lead and Spelter is noted as well as in Old Metals. We quote as follows: Casting Copper, 18c.; Lake, 19c. to 21c., in car lots for prompt shipment; small lots, ¼c. to ¾c. higher; Pig Tin, car lots, 39¼c.; small lots, 39½c.; Lead, Desilverized, 5.25c. to 5.35c., for 50-ton lots; Corroding, 6.25c. to 6.35c., for 50-ton lots; in car lots, 2¼c. per 100 lb. higher; Spelter, 6c.; Cookson's Antimony, 16c., and other grades, 15c. to 15½c.; Sheet Zinc is \$7.75 list, f.o.b. La Salle, in car lots of 600-lb. casks. On Old Metals we quote: Copper Wire, 15c.; Heavy Copper, 14¼c.; Copper Bottoms, 13¼c.; Copper Clips, 14¼c.; Red Brass, 13¼c.; Red Brass Borings, 11c.; Yellow Brass, 10c.; Yellow Brass Borings, 9c.; Light Brass, 8c.; Lead Pipe, 3¼c.; Tea Lead, 3¼c.; Zinc, 3¼c.; Pewter, No. 1, 24c.; Tin Foil, 28c.; Block Tin Pipe, 31c.

## Philadelphia.

PHILADELPHIA, PA., September 10, 1907.

Sales have been more numerous, and in a few cases some fairly good sized lots have been closed. The general situation appears to be somewhat improved. Buyers are in some instances getting to the point where purchases for their requirements for the last quarter of the year must be made, and as most sellers appear willing to meet buyers half way, little difficulty is experienced in arriving at a satisfactory basis. While it is generally conceded that there is a shrinkage in consumption, melting continues on a very large scale. The larger interests are well booked up on old contracts and have a reasonably good volume of new business coming in from day to day. While this is not fully up to the productive capacity, a rather satisfactory trade is being maintained. Prices on some grades of Iron are a shade lower than they were last week, but the market on the whole continues on a fairly even basis. Unless there is a strong resumption of buying it is hardly likely that prices will go any higher in the immediate future. Both buyers and sellers appear to be pretty well satisfied with the present figures, but as it is believed that the future will depend largely on developments during the next few weeks, the market will be very carefully watched by both buyers and sellers. At the time there appears to be some hesitancy about closing business for next year's delivery. Some few contracts have been placed, but the tonnage has not been large.

**Pig Iron.**—Buying has been somewhat more active, and while the tonnage has not been large, the disposition on the part of buyers to come into the market is more apparent. It is still difficult to give exact quotations. Prices are a shade lower than last week, and should a good, round tonnage come on the market from a desirable buyer it is possible that even slightly better terms might be made. The size of the contract and time of delivery, as well as the character of the buyer, have a great deal to do with the price, and in some cases quite low figures have been reported but lack confirmation. Furnaces, while pretty well sold up, have in some instances had deliveries held back, particularly when there has been any disposition to advance shipments, so that Iron in some grades is to be had for early delivery if desired. Sales, while more numerous, have been closely confined to small lots, particularly in foundry grades. No. 2 X Foundry has been sold at \$20.75 for round lots for the last quarter, with somewhat higher figures for small tonnages. Gray Forge has not been active, and practically no change is to be noted in the price of this grade of Iron. Basic Iron has been in better demand. Several good lots, one of several thousand tons, have been closed at about \$19.25, and it is said that this price might even be shaded if desirable business were offered. Other inquiries are in the market on which it is believed that buyers and sellers will come together in the course of the next few days. Not much has been done in Low Phosphorus, this grade of Iron being pretty well sold up. One fair lot was closed a few days ago at \$27.75. There seems to be little inclination to make purchases of any extent for next year's delivery. Buyers are watching conditions closely and will not go into the market for Pig Iron for 1908 until they feel that the price is right. The range of prices for 1907 for deliveries in buyers' yards, eastern Pennsylvania and adjoining territory, would be about as follows:

|                      |                    |
|----------------------|--------------------|
| No. 2 X Foundry..... | \$20.75 to \$21.50 |
| Gray Forge.....      | 18.75 to 19.50     |
| Basic.....           | 19.25 to 19.75     |
| Low Phosphorus.....  | 27.50 to 28.25     |

**Ferromanganese.**—Business is rather unsettled, and prices are lower than last quoted. Buyers are not taking hold very promptly, and about \$57 to \$58, seaboard, could be done for the last quarter. For delivery the first half of 1908 \$55 to \$56 has been named, but we can learn of no business that has been closed at these figures.

**Steel.**—The market has not been as active as might be desired. Specifications on old contracts do not come out very promptly, although mills have enough to keep them well occupied. There is a fair run of new business, but the tonnage is small. Prices are a shade lower for desir-



able business. The ruling quotations are \$31 to \$32 for nearby deliveries on ordinary Rolling Steel, and \$34.50 to \$35.50 for Forging Steel.

**Plates.**—There is a fair run of new business, which in some instances aggregates quite a nice tonnage. Specifications on old contracts are coming out with a little more freedom, so that mills now have a fairly good volume of business in hand. The outlook for the immediate future is encouraging, and prices are firm, as follows:

|  | Carload.<br>Cents. | Part<br>carload.<br>Cents. |
|--|--------------------|----------------------------|
| Tank, Bridge and Boat Steel.....                                 | 1.85               | 1.90                       |
| Flange or Boiler Steel.....                                      | 1.95               | 2.05                       |
| Marine.....  | 2.20               | 2.25                       |
| Locomotive Firebox Steel.....                                    | 2.40               | 2.45                       |
| The above are base prices for ¼-in. and heavier,<br>extra apply: |                    |                            |
| 3-16 in. thick.....  | \$0.10             |                            |
| Nos. 7 and 8, B. W. G.....                                       | .15                |                            |
| No. 9, B. W. G.....  | .25                |                            |
| Plates over 100 to 110 in.....                                   | .05                |                            |
| Plates over 110 to 115 in.....                                   | .10                |                            |
| Plates over 115 to 120 in.....                                   | .15                |                            |
| Plates over 120 to 125 in.....                                   | .25                |                            |
| Plates over 125 to 130 in.....                                   | .50                |                            |
| Plates over 130 in.....  | 1.00               |                            |

**Structural Material.**—The demand has been confined largely to miscellaneous lots and some little improvement is to be noted in the volume of business. Here and there a good tonnage comes up, and mills keep fairly busy. Prices are unchanged, at 1.85c. to 2c., according to specifications.

**Bars.**—The market continues very dull, the demand being extremely light. Prices for best Refined Iron are quoted nominally at 1.85c., although it is probable that that might be shaded for desirable business. Steel Bars are hard to get, but are quotable at about 1.85c., Philadelphia, with a slight premium, however, for prompt shipment.

**Sheets.**—There has not been a great deal of activity in this line. Mills are still pretty well booked up, although specifications are not being received as promptly as desired. New business is light. Prices for mill shipments are as follows, a tenth extra being quoted for small lots: Nos. 18 to 20, 2.80c.; Nos. 22 to 24, 2.90c.; Nos. 25 to 26, 3c.; No. 27, 3.10c., and No. 28, 3.20c.

**Old Material.**—The market is somewhat firmer, although prices remain about the same as last week. There is a better feeling, however, and more disposition to get in the market is shown by the mills. One lot of 3000 tons of No. 1 Steel Scrap was closed a few days ago at the inside figure. Bids and offers for deliveries in buyers' yards are about as follows:

|                                 |                    |
|---------------------------------|--------------------|
| Old Steel Rails and Crops.....  | \$16.75 to \$17.25 |
| No. 1 Steel Scrap.....          | 16.50 to 17.00     |
| Low Phosphorus.....             | 22.00 to 22.50     |
| Old Steel Axles.....            | 20.00 to 20.50     |
| Old Iron Axles.....             | 27.50 to 28.50     |
| Old Iron Rails.....             | 20.50 to 21.00     |
| Old Car Wheels.....             | 23.00 to 23.50     |
| Choice No. 1 R. R. Wrought..... | 18.00 to 18.50     |
| Machinery Castings.....         | 18.00 to 18.50     |
| Wrought Iron Pipe.....          | 14.50 to 15.00     |
| No. 1 Forge Fire Scrap.....     | 14.75 to 15.00     |
| Wrought Turnings.....           | 14.00 to 14.50     |
| Stove Plate.....                | 14.50 to 15.00     |
| Cast Borings.....               | 13.00 to 13.50     |
| Grate Bars.....                 | 14.50 to 15.00     |
| No. 2 Light Sheet Steel.....    | 13.00 to 14.00     |

Pilling & Crane of Philadelphia and New York have been appointed exclusive sales agents for the Benson concentrated ore, produced by the Benson Mines Company, St. Lawrence County, New York.

## Birmingham.

BIRMINGHAM, ALA., September 9, 1907.

**Pig Iron.**—One lot of 700 tons of No. 2 Foundry came on the market at \$18, and was immediately taken, the seller at once advancing prices to \$18.50, Birmingham. There have been a good many sales made during the week at \$18.50 for No. 2 Soft. It develops that a number of large consumers have not covered for the last quarter of the year, and inquiries are now coming in rapidly for such deliveries. A large consumer made inquiry Thursday for several thousand tons, but not finding anything available below \$18.50, Birmingham, for No. 2 Foundry, decided not to purchase at this time. The Alabama Consolidated Coal & Iron Company expects to blow in at an early day its No. 2 furnace at Gadsden, which has been out of blast for something over 60 days. This company has also out of blast, for relining and general overhauling, its No. 1 furnace at Ironton, and this stack is expected to resume operations early in October. The Coke market remains very firm, as the recent hot weather has prevented the regular operation of ovens, owing to the inability of the workmen to give full service. Good Furnace Coke is bringing \$4, Birmingham, while Foundry Coke is commanding a premium of 25 to 50c. per ton.

**Cast Iron Pipe.**—Business is not so good as could be desired, but considering the weak condition of the Iron market, prices on Pipe have been maintained remarkably well. No important lettings are advertised for the im-

mediate future and current business consists entirely of small orders for repairs and extensions, which, while not so numerous as a few months since, in the aggregate amount to a fairly satisfactory tonnage. It is understood that a number of contracts which were held up this year on account of the high price of Pipe, are now being revived, and if the Iron market settles down to a satisfactory basis it is probable that a large part of them will be let within the next few months. In the meantime the manufacturers here state that the orders now on their books will take care of their production for the remainder of this year. Prices on Water Pipe are slightly lower, quotations being about as follows per net ton, f.o.b. cars here: 4 to 6 in., \$34; 8 to 12 in., \$33; over 12 in., average \$31, with \$1 per ton extra for Gas Pipe.

**Old Material.**—There is little demand for Scrap, with the exception of Steel, which is now moving more freely than for some time. Consumers are indifferent and dealers are not disposed to force buying. Stocks on yards here are large. Quotations average about as follows per gross ton, f.o.b. cars Birmingham:

|                                 |                    |
|---------------------------------|--------------------|
| Old Iron Rails.....             | \$22.00 to \$22.50 |
| Old Iron Axles.....             | 18.50 to 19.00     |
| Old Steel Axles.....            | 17.00 to 17.50     |
| Old Car Wheels.....             | 20.50 to 21.00     |
| No. 1 Railroad Wrought.....     | 17.50 to 18.00     |
| No. 2 Railroad Wrought.....     | 12.50 to 13.00     |
| No. 1 Country Wrought.....      | 13.00 to 13.50     |
| No. 2 Country Wrought.....      | 11.50 to 12.00     |
| Wrought Pipe and Flues.....     | 12.50 to 13.00     |
| Railroad Malleable.....         | 14.00 to 14.50     |
| No. 1 Steel.....                | 14.00 to 14.50     |
| No. 1 Machinery Cast.....       | 15.50 to 16.00     |
| Stove Plate and Light Cast..... | 12.00 to 12.50     |
| Cast Borings.....               | 8.25 to 8.75       |

## Pittsburgh.

PARK BUILDING, September 11, 1907.—(By Telegraph.)

**Pig Iron.**—Indications are that the output of Bessemer Pig Iron will be materially decreased during this and next month, as four furnaces in the two valleys have been compelled to blow out for repairs, these being the Elk of Pickands, Mather & Co., Alice of the Youngstown, Sheet & Tube Company, No. 4 stack of the Shenango Furnace Company and one stack of the Andrews & Hitchcock Iron Company. There is some demand for Malleable Bessemer Iron for shipment in the first quarter of next year, on which about \$21, at Valley furnace, has been quoted. Standard Bessemer Iron continues firm at \$22, Valley furnace, for consumers are taking Iron in as fast as the furnaces can deliver it. Reports that the Cambria Steel Company had canceled 30,000 tons of September Iron with the Shenango Furnace Company are utterly untrue. On the contrary, the Cambria Company will take more Iron from this interest in September than it did in August. We quote Basic Iron at \$20.50 to \$21, Valley furnace. There is very little inquiry for Foundry Iron, and only for small lots for prompt shipment. We quote Northern No. 2 Foundry for forward delivery at \$20.50 to \$21, Valley furnace, or \$21.40 to \$21.90, Pittsburgh. Small lots for prompt delivery are held at \$22 to \$22.50, at Valley furnace. Forge is quoted at \$20.50, Valley furnace, or \$21.40, Pittsburgh, but on firm offer could probably be bought as low as \$20, Valley furnace, or \$20.90, Pittsburgh.

**Steel.**—Reports are that Steel Billets and Sheet Bars are scarcer now than at any time in the last two months, which is largely due to the long shutdown of the Shenango Works at New Castle, and the accident at the Youngstown Steel plant. Prices are very firm, and it is stated that Bessemer Billets are held at \$29.50, minimum, and up to \$30, Pittsburgh. Open Hearth Billets are about \$31, and Forging Billets about \$33, Pittsburgh. Sheet and Tin Bars are firm at \$31, maker's mill.

(By Mail.)

Extreme quietness continues to rule in all departments of the Iron trade, but in spite of the falling off in orders in practically all lines, prices are fairly firm, with the exception of two or three of the more finished forms of Iron and Steel. No large contracts for Rails have been placed during the week, but the Rail mills and the railroads are getting closer together on the matter of specifications, and it is believed that some large tonnage will be placed in a short time. Pig Iron continues quiet, the market being practically bare of important inquiries. Bessemer Iron is firm on the basis of \$22, Valley furnace, and it is stated there is not a stack in either the Mahoning or Shenango valleys that is not behind in deliveries. There is some little inquiry for Basic Iron, which is held nominally at \$21, Valley furnace, but Foundry and Forge Iron are very dull.

**Ferromanganese.**—A local consumer has bought upward of 150 tons of foreign Ferro for last quarter delivery on the basis of about \$60, Pittsburgh. We quote 80 per cent. English Ferro for spot delivery at about \$62, and for last quarter at \$60, Pittsburgh.

**Muck Bar.**—The market is quiet, and, owing to the declining price of Forge Pig Iron, prices on Muck Bar are

somewhat easier. We continue to quote best grades of Bar made from all Pig Iron at \$36 to \$36.50, Pittsburgh.

**Skelp.**—A local mill rolling Skelp reports a sale of 500 tons of Sheared Iron on the basis of about 2.30c., Pittsburgh. Mills are filled up on contracts for some time ahead, and the market is very strong. We quote: Grooved Steel Skelp, 1.85c. to 1.90c.; Sheared Steel Skelp, 1.95c. to 2c.; Grooved Iron Skelp, 2.15c. to 2.20c., and Sheared Iron Skelp, 2.25c. to 2.40c., depending on sizes and widths. All these prices are f.o.b. maker's mill.

**Wire Rods.**—The demand continues fairly large, and owing to the continued shortage in the supply of Billets, prices are firm. We quote Bessemer Rods at \$36 and Open Hearth at about \$37, Pittsburgh.

**Rails.**—No important contracts were taken by the local mill in the past week, but it is understood that several of the leading roads are about ready to close for next year's delivery, subject to the specifications that may be agreed upon between the Rail mills and the railroads. The demand for Light Rails continues good, the Carnegie Company having taken about 2500 tons in the past week. We quote Light Rails as follows: \$33 to \$34 for 20 to 45 lb.; \$34 to \$35 for 16-lb., and \$35 to \$36 for 12-lb., at mill. Angle Splice Bars are held at 1.65c., and Standard Section Rails at \$28, at mill.

**Plates.**—New business being placed is somewhat light, but specifications against contracts are coming in freely and shipments by the mills are as heavy as at any time this year. Some of the mills are gradually catching up on deliveries, but two or three of the leading mills are filled for the rest of this year. We quote: Tank Plates, ¼-in. thick, 6¼ in. up to 100 in. wide, 1.70c. to 1.80c., base, at mills, Pittsburgh. Extras over this price are as follows:

|  | Extra per<br>100 lb. |
|--|----------------------|
| Gauges lighter than ¼-in. to and including 3-16-in.  |                      |
| Plates on thin edges.....  | \$0.10               |
| Gauges Nos. 7 and 8.....   | .15                  |
| Gauge No. 9.....   | .25                  |
| Plates over 100 to 110 in.....   | .05                  |
| Plates over 110 to 115 in.....   | .10                  |
| Plates over 115 to 120 in.....   | .15                  |
| Plates over 120 to 125 in.....   | .25                  |
| Plates over 125 to 130 in.....   | .50                  |
| Plates over 130 in.....  | 1.00                 |
| All sketches (excepting straight taper Plates varying not more than 4 in. in width at ends, narrowest end being not less than 30 in.)..... | .10                  |
| Complete Circles.....  | .20                  |
| Boiler and Flange Steel Plates.....  | .10                  |
| "A. B. M. A." and ordinary Firebox Steel Plates..  | .20                  |
| Still Bottom Steel.....  | .30                  |
| Marine Steel.....  | .40                  |
| Shell Grade of Steel is abandoned.   |                      |

**TERMS.**—Net cash 30 days. For anticipated payments a maximum discount may be allowed at the rate of 6 per cent. per annum and for a longer time than 30 days interest shall be charged at the same rate per annum. Invoices paid within 10 days from date thereof, discount of ½ of 1 per cent. is allowable. Pacific Coast base, 1.60c., f.o.b. Pittsburgh, with all rail tariff rate of freight to destination added, no reduction for rectangular shapes 14 in. wide down to 6 in. of Tank, Ship or Bridge quality.

**Structural Material.**—Figuring is now being done on the Oliver office building, to be erected by the Oliver estate on Smithfield street in this city, and this job is expected to require about 11,000 tons. Specifications against contracts are coming in freely and cancellations are reported as being few and unimportant. We quote: Beams and Channels, up to 15 in., 1.70c.; over 15 in., 1.80c.; Angles, 3 x 2 x ¼ in. thick, up to 6 x 6 in., 1.70c.; 8 x 8 and 7 x 3½ in., 1.80c.; Zees, 3 in. and larger, 1.70c.; Tees, 3 in. and larger, 1.75c. Under the Steel Bar card, Angles, Channels and Tees under 3 in. are 1.70c., base, for Bessemer and Open Hearth, subject to half extras on the Standard Steel Bar card.

**Sheets.**—The mills are now making fairly prompt deliveries on Black Sheets, but on Galvanized are still from two to three months behind. The decline in the price of Spelter has given rise to a report that prices on Galvanized Sheets may be reduced, but we are officially advised that this is hardly likely. Sheet Bars continue firm, at \$31, Pittsburgh, and are scarcer at the present moment than for some time. Prices on Sheets continue quite firm, and we quote: Blue Annealed Sheets, No. 10 gauge and heavier, 1.85c.; Nos. 11 and 12, 1.90c.; No. 13 and 14, 1.95c.; Nos. 15 and 16, 2.05c.; Box Annealed, Nos. 17 to 21, 2.35c.; Nos. 22 to 24, 2.40c.; Nos. 25 and 26, 2.45c.; No. 27, 2.50c.; No. 28, 2.60c.; No. 29, 2.75c.; No. 30, 2.85c. We quote Galvanized Sheets as follows: Nos. 10 and 11, 2.65c.; Nos. 12 and 14, 2.75c.; Nos. 15 and 16, 2.85c.; Nos. 17 to 21, 3c.; Nos. 22 and 24, 3.15c.; Nos. 25 and 26, 3.35c.; No. 27, 3.55c.; No. 28, 3.75c.; No. 29, 4c., and No. 30, 4.25c. We quote No. 2 gauge Painted Roofing Sheets at \$1.85 per square, and Galvanized Roofing Sheets, No. 28 gauge, \$3.25 per square, for 2-in. corrugations. These prices are for carload lots, jobbers charging the usual advances.

**Hoops and Bands.**—The mills report a fair amount of new tonnage being placed, but shipments against contracts are heavy, and the market is firm. We quote: Steel Hoops, 2c., and Bands for all purposes at 1.60c., base, half extras as per Standard Steel card. These prices are for carload lots, f.o.b. Pittsburgh, plus full tariff rail rate to point of

delivery, an advance of \$2 a ton being charged for less than carloads.

**Cotton Ties.**—Business in this line for this year is about over, and any small orders being placed are taken at the official price of 96½c. per bundle, maker's mill.

**Tin Plate.**—Negotiations are now under way with a number of the leading canning interests, and considerable new tonnage in Bright Plate is expected to be placed this month for October and November delivery. Several mills report they have already entered some business of this character, and indications are that the Tin Plate trade will be more active in the near future as regards new business than it has been for some little time. We quote \$3.90 for 100-lb. Cokes, 14 x 20, f.o.b. Pittsburgh, terms 30 days, less 2 per cent. off for cash in 10 days, on which price a rebate of 5c. a box is allowed for carload and larger lots.

**Bars.**—New business in both Iron and Steel Bars is rather light as compared with the great activity of some time ago, but the mills rolling Steel Bars are pretty well filled up for the next two or three months on contracts on which specifications are coming in freely. There is a fair amount of tonnage being placed in Iron Bars, but deliveries on these can be had more promptly than on Steel Bars which still continue to bring premiums for early delivery. We quote Iron Bars at 1.70c., Pittsburgh, but this price might be slightly shaded for desirable orders. We quote Steel Bars for forward delivery at 1.60c., base, half extras, f.o.b. Pittsburgh, and for prompt shipment at 1.75c. to 1.80c., Pittsburgh.

**Spelter.**—It is evident that there is an overproduction of Spelter, and plans are now under way by the smelters with a view of reducing the output. Prices have still further declined, and we now quote prime grades of Western at 5.35c., St. Louis, equal to 5.47½c., Pittsburgh. On a firm offer this price would likely be shaded.

**Merchant Steel.**—Prices on Steel Shafting are somewhat demoralized, one leading interest quoting as low as 60 per cent. off, f.o.b. Pittsburgh, plus rail rate to point of delivery, which is equal to 2c. a pound for the base sizes. Several other concerns are quoting about 55 per cent. off for carloads, delivered, and the competition for tonnage coming up is very keen. We quote: Smooth Finished Machinery Steel, 1.85c. to 2c., depending on quality; Flat Sleigh Shoe, 1.65c. to 1.75c.; Cutter Shoe, 2.15c. to 2.20c.; Toe Calk Steel, 2.10c. to 2.15c.; Railroad Spring Steel, 1.75c. to 1.80c.; Crucible Tool Steel, 6c. to 8c. for ordinary grades, and 10c. and upward for special grades. Shafting, 60 per cent. off in-car lots; 55 per cent., less than car lots, Pittsburgh.

**Railroad Spikes.**—Orders for the standard sizes of Spikes are light and prices are somewhat weak. We note a continued active demand for the smaller sizes, the market on which is firm. We quote standard sizes at \$2 to \$2.10 and smaller sizes at \$2.25 to \$2.35 per 100 lb., f.o.b. maker's mill.

**Boiler Tubes.**—Prices on Railroad Tubes are softer than for some time, and we understand that several contracts have recently been taken at prices somewhat lower than were in force a month or two ago. The new demand for Merchant Tubes is rather light, but prices are fairly steady. Discounts on Merchant Tubes are as follows:

| Boiler Tubes.   |  | Iron. | Steel. |
|---|--|-------|--------|
| 1 to 1½ in.....   |  | .42   | .47    |
| 1½ to 2¼ in.....  |  | .42   | .49    |
| 2¼ in.....  |  | .47   | .61    |
| 2½ to 5 in.....   |  | .52   | .65    |
| 6 to 13 in.....   |  | .42   | .59    |
| 2½ in. and smaller, over 18 ft. long, 10 per cent. net extra. |  |       |        |
| 2½ in. and larger, over 22 ft. long, 10 per cent. net extra.  |  |       |        |

**Merchant Pipe.**—The amount of new business being placed is not nearly so heavy as some time ago. Prices on Iron Pipe are easier, but on Steel Pipe are quite firm. On Iron Pipe ¼ to 6 in. as low as 60 per cent. has been done, and in certain districts still lower prices have been made. An Eastern mill has taken a contract from the Philadelphia Company for 10 miles of 6-in. Iron Line Pipe at a relatively low price. Discounts on Steel Pipe are as follows:

| Merchant Pipe.                   |  | Jobbers, carloads. |       |
|----------------------------------|--|--------------------|-------|
|                                  |  | Steel.             |       |
|                                  |  | Black.             | Galv. |
| ¼ to ¾ in.....                   |  | .65                | .49   |
| ¾ in.....                        |  | .67                | .53   |
| 1 in.....                        |  | .69                | .57   |
| ¾ to 6 in.....                   |  | .73                | .63   |
| 7 to 12 in.....                  |  | .70                | .55   |
| Extra strong, plain ends:        |  |                    |       |
| ¼ to ¾ in.....                   |  | .58                | .46   |
| ¾ to 4 in.....                   |  | .65                | .53   |
| 4½ to 8 in.....                  |  | .61                | .49   |
| Double extra strong, plain ends: |  |                    |       |
| ½ to 8 in.....                   |  | .54                | .43   |

To the large trade all above discounts are subject to 1 point on the base, and 5 per cent. on the net.

Official discounts on Iron Pipe, which are shaded 2 points or more to the large trade, are as follows, f.o.b. Pittsburgh:



## Standard Genuine Iron Pipe.

|                                    | Black. | Galv. |
|------------------------------------|--------|-------|
| 3/4 to 6 in.....                   | .67    | .57   |
| 1/2 in.....                        | .62    | .50   |
| 3/4 in.....                        | .60    | .42   |
| 1/2 and 3/4 in.....                | .58    | .42   |
| 7 to 12 in.....                    | .62    | .47   |
| Extra Heavy Iron Pipe, Plain Ends. |        |       |
| 1/4, 3/4 and 1 in.....             | .62    | .40   |
| 1/2 to 4 in.....                   | .59    | .47   |
| 4 1/2 to 8 in.....                 | .55    | .42   |

**Scrap.**—The amount of Scrap changing hands continues relatively small, consumers being afraid of the market and placing orders only for small lots and actual requirements. Dealers quote about as follows: Heavy Steel Scrap, \$17.75 to \$18 for Pittsburgh, Steubenville or Sharon delivery; No. 1 Railroad Wrought Scrap, \$17.75 to \$18; Re-rolling Rails, \$18.25 to \$18.50; No. 2 Wrought Iron Scrap, \$17.25 to \$17.50; No. 1 Busheling Scrap, \$17 to \$17.25; No. 2, \$13.50 to \$13.75; Bundled Sheet Scrap, \$15.50 to \$15.75; Low Phosphorus Melting Stock, \$21.50; Old Steel Rails, short pieces for Open Hearth use, \$17.75 to \$18; No. 1 Cast Scrap, \$20 to \$20.50; Cast Iron Borings, \$13.25 to \$13.50; Old Car Wheels, \$25 to \$25.50; Steel Axles, \$22.25 to \$22.50; Stove Plate, \$15.75 to \$16; Grate Bars, \$15.75 to \$16. All above prices are per gross ton, f.o.b. buyer's mill, Pittsburgh, except otherwise noted. On a firm offer and for any considerable tonnage it is probable these prices would be shaded.

**Coke.**—Strictly Connellsville Furnace Coke continues scarce, and for prompt delivery is very firm on a basis of \$2.75 to \$2.80 per ton at oven. Connellsville 72-hr. Foundry Coke is also firm, being held at \$3.15 and as high as \$3.50 for special grades. Main Line and Klondike Furnace Coke is being offered as low as \$2.25 to \$2.50 a ton at oven, and Foundry from \$2.75 to \$3 a ton. The supply of labor and of cars is plentiful in the Connellsville region, and the output of Coke continues heavy. Last week the Upper and Lower Connellsville regions made 425,411 tons, an increase of nearly 5000 tons over the previous week.

## Cleveland.

CLEVELAND, OHIO, September 10, 1907.

**Iron Ore.**—Contrary to the expectations of shippers and vessel owners, the record of Ore shipments made in June was broken in August, the total movement having been 6,806,810 tons. June shipments were 6,433,369 tons. The August shipments show a gain of 1,140,995 tons over the same month in 1906. Had it not been for the light shipments the first few days of the month, due to labor troubles, the August movement would easily have exceeded 7,000,000 tons. Up to September 1 the total shipments were 24,341,551 tons, which is an increase of 1,621,456 tons as compared with the same time last year. All the docks made a gain in shipments over August, 1906, except the Chicago, Milwaukee & St. Paul dock at Escanaba, where there was a loss of about 25,000 tons. The ports at the head of Lake Superior show a gain of 886,529 tons as compared with the previous August. The greatest gain was made at Duluth, where the docks handled 449,339 more tons than a year ago. Duluth leads all ports in shipments up to September 1 with 7,202,545 tons. Two Harbors comes second with 4,752,063 tons, and Superior third with 4,416,454 tons. There will be a serious shortage of Ore this season as a result of the scarcity of labor in the mines, which was further augmented by the recent labor troubles. This shortage will be felt principally in the Mesaba mines, although there will be some shortage in the Old Range properties. As noted two weeks ago, one shipper has already notified its customers that it has a shortage and will be unable to deliver all the Ore that it has under contract. One prominent shipper reports that it will have a shortage of 25 per cent. on some of its Mesaba properties and a shortage of 20 per cent. on some of its Old Range properties. Another leading shipper expects to come out about even on its Old Range properties, but will have a shortage on its Mesaba properties. This shortage, it is claimed, will not be over 10 per cent. Another shipping interest, not operating extensively in the Mesaba or Old Range districts, estimates that its shortage will be about 100,000 tons, or about 4 per cent. of its sales. As a result of the shortage a great improvement is noted in the demand for Ore, but there is little to be had, and what is available is quickly picked up. Ore prices are firm, but premium prices are not asked. Prices are as follows at Lake Erie docks per gross ton: Old Range Bessemer, \$5; Mesaba Bessemer, \$4.75; Old Range Non-Bessemer, \$4.25; Mesaba Non-Bessemer, \$4; Siliceous Bessemer, \$2.75; Siliceous Non-Bessemer, \$2.35 to \$2.60.

**Pig Iron.**—The demand for Foundry Iron for immediate delivery keeps up fairly well. The purchases are limited, however, to small lots. The local market seems to be a little stronger than in the valleys. This seems to be due to the fact that local furnaces have not accumulated stocks but so far have shipped out their Iron as fast as produced.

While some consumers have asked that shipments be suspended for a few weeks, the furnaces are well sold up and whatever Iron they have for sale for spot shipment they have no difficulty in disposing of in small lots. Prices remain unchanged, the week's sales of the local furnaces having been made at \$22.50, at furnace, for No. 2 Foundry. A local interest reports the sale of an aggregate of 3000 tons of Iron at its furnace in western Pennsylvania at \$21.50, at furnace, for No. 2 Foundry, for prompt shipment and for the balance of the year. One interest is holding its Iron at \$22, Valley furnace, for No. 2, for the balance of the year, and reports quite a number of inquiries from the Eastern market. Foundries are as yet taking no interest in next year's market. An inquiry for a price on 1000 tons for first half delivery was made of a local furnace a week ago, the foundry wanting a price on which to base a contract for castings, but nothing further was heard from the foundry. Local furnaces continue to quote No. 2 Foundry Iron at \$21.50 for first half of next year. Basic Iron remains quiet and there are no inquiries for Southern Iron for 1908 delivery. Quotations for the balance of 1907, f.o.b. Cleveland, are as follows:

|                              |         |
|------------------------------|---------|
| Bessemer .....               | \$22.90 |
| Northern Foundry, No. 1..... | 23.00   |
| Northern Foundry, No. 2..... | 22.50   |
| Northern Foundry, No. 3..... | 22.00   |
| Gray Forge.....              | 21.40   |

**Coke.**—There is a scarcity of Coke as a result of the scarcity of labor that has restricted production, and many producers are behind on their deliveries. There is a heavy demand for shipments of Coke on contract, particularly Furnace Coke, but not many new orders are being placed. Prices are stronger. Dealers are asking from \$3 to \$3.25, at oven, for Connellsville Furnace Coke. We quote 72-hr. Foundry Coke at \$3.25 to \$3.50, at oven. We note a sale of stock Coke at \$2.15.

**Finished Iron and Steel.**—There has been a falling off in the volume of specifications during the week, and new business is comparatively light. Consumers are not anticipating their wants, as they were a short time ago. With the easing up of the situation and the improvement of deliveries, many consumers are not showing so much haste in sending in their specifications. The demand for Steel Bars continues fairly good, with some mills promising shipments in from six to eight weeks. The mills are also receiving a good volume of specifications for Bar products from the agricultural implement makers. The Bar Iron situation continues unchanged. Orders are light, and mills are looking for business, and can make prompt shipment. We quote Steel Bars at 1.70c. for car lots for future delivery, with half extras. Local mills quote Iron Bars at 1.65c., Cleveland. Other mills are getting 1.60c. to 1.65c., Pittsburgh, for Iron Bars. The Structural situation is easier, and some of the mills can make better deliveries. The Plate situation has also relaxed, and some mills can make quite prompt deliveries, although one mill that does a premium business reports that it is still getting orders for Plates for prompt shipment at a premium of \$2 a ton. No further contracts for boats have been closed by local builders, but reports from Buffalo state that William Mills and others of Tonawanda, N. Y., have closed a contract with the Great Lakes Engineering Works of Detroit for two new lake boats for 1908 delivery. The same interests, it is reported, also bought another boat, already under construction by the Great Lakes Company. Sheet specifications are scarce, and deliveries are constantly improving. Reasonably prompt deliveries can now be made on Black Sheets. With the easing up of the Billet situation some of the mills are now looking for orders. We quote Forging Billets at \$34, Cleveland, for prompt delivery. We quote Beams and Channels at 1.80c., base, Cleveland, for carload lots, and Plates, 3/4-in. and heavier, carload lots, 1.80c. While mill orders are light, warehouse business is holding up in good shape, and is fully as good as it was at this time a year ago. The warehouse price on Steel Bars is 1.90c. to 1.95c., and on Iron Bars, 1.95c. to 2c. Jobbers' prices on Sheets are as follows: Blue Annealed, No. 10, 2.30c.; No. 28 One Pass Cold Rolled, 3.05c.; No. 28 Galvanized, 4.05c. Beams and Channels are 2.25c., base, out of stock. The warehouse price on Boiler Tubes, 2 1/2 to 5 in., is 64 per cent. discount, and on Black Merchant Iron Pipe, base sizes, 67 per cent. discount.

**Old Material.**—Prices remain practically stationary on all grades except Turnings and Cast Scrap, which are a little weaker. Busheling is very scarce, mills complaining that they are unable to get it on contract. Its scarcity, however, has not caused an advance in price. The supply of Turnings is greater than the demand. The mills are doing very little buying, and that only to supply their immediate needs, but owing to the expiration of old contracts an improvement in the demand is looked for soon. Some dealers complain that considerable Scrap is being refused by mills that have old contracts at higher prices than those prevailing at present. Among the railroad offerings this week is a good sized tonnage to be sold by the Baltimore & Ohio. Dealers' prices to the trade per gross ton, f.o.b. Cleveland, are as follows:



|                                      |                    |
|--------------------------------------|--------------------|
| Old Steel Rails.....                 | \$16.50 to \$16.75 |
| Old Iron Rails.....                  | 22.00 to 22.50     |
| Steel Car Axles.....                 | 21.50 to 22.00     |
| Old Car Wheels.....                  | 23.00 to 24.00     |
| Relaying Rails, 50 lb. and over..... | 27.50 to 28.00     |
| Relaying Rails, under 50 lb.....     | 30.00 to 31.00     |
| Heavy Melting Steel.....             | 16.00 to 16.50     |
| Railroad Malleable.....              | 17.75 to 18.25     |
| Agricultural Malleable.....          | 15.50              |
| Light Bundled Sheet Scrap.....       | 13.50 to 14.00     |

The following quotations are per net ton, f.o.b. Cleveland:

|  |                    |
|--|--------------------|
| Iron Car Axles.....                        | \$26.00 to \$27.00 |
| Cast Borings.....                          | 10.50 to 11.00     |
| Iron and Steel Turnings and Drillings..... | 11.00 to 12.00     |
| Steel Axle Turnings.....                   | 14.00 to 15.00     |
| No. 1 Busheling.....                       | 14.50 to 15.00     |
| No. 1 Railroad Wrought.....                | 16.00 to 16.50     |
| No. 1 Cast.....                            | 17.50 to 18.00     |
| Stove Plate.....                           | 14.50 to 15.00     |
| Bundled Tin Scrap.....                     | 10.00              |

## Cincinnati.

FIFTH AND MAIN STS., Sept. 11, 1907.—(By Telegraph.)

A careful survey of the local market reveals some interesting side lights, but the wisest seer gives little encouragement to the seeker after forward business, otherwise the first quarter of 1908. There is, perhaps, not the same grade of reluctance apparent among melters to buy Iron for current needs, although none are as yet greatly in evidence, and it is a fact that brokers whose sales usually average 1000 tons a day now deal in hundreds only. Some interest is manifested in an inquiry for a 4000-ton lot of Malleable Iron for 1908 delivery to a Chicago concern in two lots of 2000 tons each, but as to actual sales, none of any size can be traced. Showing the feeling of the melters as to the future, the attitude of two new foundries is significant. One of those, who is practically ready to pour, has set the middle of November for beginning and will not buy his Iron for several weeks, the same being true of the other foundryman, whose capacity will be something like 100 or 150 tons a day. Southern furnaces are busy making deliveries on contracts for the last quarter, and considering the large percentage of this business still undelivered, selling agents are nursing a feeling that the melters who are not covered for the remainder of the year must soon make a break, and that a return of normal buying condition is an early certainty.

**Pig Iron.**—The week just closed has developed little actual buying, and this has been confined to small lots of 200 and 300 tons. For spot business \$18.50, Birmingham, on No. 2 Foundry is asked, and a small sale or two at \$18, furnace, is reported, but some authorities announce a withdrawal of this last named price and a general agreement on the higher quotation. The overproduction of low grades the last few months attracted attention and hammered the price on Gray Forge and Mottled to a basis of \$15.50 and \$15, Birmingham, and some sales are reported at these figures under pressure. The usual increased production of high grades, beginning in October, is expected to take care of the expected rush from melters to cover on pressing contracts for last quarter delivery. There appears every reason to believe that \$17.50 can be done on No. 2 Foundry, Birmingham, for the first quarter of 1908, and the price could probably be shaved on an offer of good tonnage to \$17. A sale of 300 tons to a large car manufacturing concern of Dayton, Ohio, is being negotiated for prompt delivery, but the price is not yet obtainable. Ohio Malleable Iron is quoted at \$21.75 at furnace for prompt delivery, although it is reported that some small lots were sold the past week at \$21 at furnace. Ohio Silvery, 8 per cent. Silicon, is reported scarce at furnaces, and the price is firm at \$30. No figures are obtainable on this grade for first quarter delivery. For prompt delivery, Cincinnati, in which are figured the freight rate from Birmingham, \$3.25, and from the Hanging Rock District, \$1.20, we quote as follows:

|  |                    |
|--|--------------------|
| Southern Coke, No. 1.....              | \$21.75 to \$22.25 |
| Southern Coke, No. 2.....              | 21.25 to 21.75     |
| Southern Coke, No. 3.....              | 20.25 to 20.75     |
| Southern Coke, No. 4.....              | 19.25 to 19.75     |
| Southern Coke, No. 1 Soft.....         | 21.75 to 22.25     |
| Southern Coke, No. 2 Soft.....         | 21.25 to 21.75     |
| Southern Coke, Gray Forge.....         | 18.75 to 19.25     |
| Southern Coke, Mottled.....            | 18.25 to 18.75     |
| Ohio Silvery, 8 per cent. Silicon..... | 30.20 to 30.70     |
| Lake Superior Coke, No. 1.....         | 22.00 to 22.50     |
| Lake Superior Coke, No. 2.....         | 21.50 to 22.00     |
| Lake Superior Coke, No. 3.....         | 20.50 to 21.00     |

### Car Wheel Irons.

|                                   |                    |
|-----------------------------------|--------------------|
| Standard Southern Car Wheels..... | \$29.25 to \$29.75 |
| Lake Superior Car Wheels.....     | 27.50 to 28.00     |

**Coke.**—The market continues to show improvement, with an advancing tendency, favorite grades being active. A factor with the Southern output is the scarcity of cars required to handle the raw material, and this is materially affecting production. Some good sized contracts are going, with 72-hr. Connellsville Foundry quoted at \$3.25 to \$3.50 per ton at oven for prompt shipment, and Furnace at \$2.75 to \$3.25; Wise County, Virginia, prompt shipment Furnace Coke, \$2.60 to \$2.75, and Foundry, \$3.25 to \$3.50; Pocahontas Furnace, prompt shipment, \$2.65 to \$2.75.

**Finished Iron and Steel.**—Dealers report little change

in the situation, which is quiet save that the demand for Plates and Angles is very good. Following are prices at which orders are filled here: Iron Bars, carload lots, 1.80c., with half extras; small lots from store, 1.95c., base, full extras; Steel Bars, carload lots, 1.75c., base, half extras; small lots from store, 1.95c., base, full extras; Base Angles, carload lots, 1.85c.; small lots from store, 2.10c.; Beams, Channels and Structural Angles, 1.85c., base; small lots from store, 2.25c.; Plates, ¼-in. and heavier, carload lots, 1.85c.; small lots from store, 2.10c.; Sheets, No. 16, carload lots, 2.15c.; small lots from store, 2.70c.; No. 14, carload lots, 2.05c.; small lots from store, 2.40c.; Steel Tire, IX, ¼-in. or heavier, carload lots, 1.95c., base; Plates, 3-16 and No. 8, carload lots, 1.95c.; small lots from store, 2.20c.; Sheets, No. 10, 1.95c., carload lots; 2.25c. from store; Sheets, No. 12, 2c., carload lots; 2.35c. from store.

**Old Material.**—The Scrap market feels the effect of heavy offerings from the railroads direct to the mills, and dealers are not optimistic on the present outlook. Dealers quote, f.o.b. Cincinnati, about as follows:

|   |                    |
|---|--------------------|
| No. 1 R. R. Wrought, net ton.....             | \$15.25 to \$15.75 |
| Cast Borings, net ton.....                    | 8.00 to 9.00       |
| Steel Turnings, net ton.....                  | 9.50 to 10.00      |
| No. 1 Cast Scrap, net ton.....                | 16.00 to 16.50     |
| Burnt Cast and Wrought, net ton.....          | 9.50 to 10.00      |
| Old Iron Axles, net ton.....                  | 24.00 to 25.00     |
| Old Iron Rails, gross ton.....                | 20.00 to 21.00     |
| Old Steel Rails, long, gross ton.....         | 15.50 to 17.50     |
| Relaying Rails, 56 lb. and up, gross ton..... | 27.50 to 28.00     |
| Old Car Wheels, gross ton.....                | 23.00 to 23.50     |
| Mining Car Wheels, gross ton.....             | 12.00 to 13.00     |
| Low Phosphorus Scrap, gross ton.....          | 19.50 to 20.00     |

## New York.

NEW YORK, September 11, 1907.

**Pig Iron.**—There has been a more active movement in all grades of Pig Iron, notably in eastern Pennsylvania, where a considerable tonnage of Basic and of Low Phosphorus Iron has been purchased by a number of the Steel mills, with further business pending. The 5000-ton order for Foundry Iron for a New England plant will probably be placed to-day. We quote for large lots of Northern Irons, at tidewater, \$21.25 to \$21.75 for No. 1 Foundry, \$19.75 to \$20.25 for No. 2 Foundry, and \$19 to \$19.50 for No. 2 Plain.

**Steel Rails.**—The conferences held in New York Wednesday and Thursday of last week between representatives of the American Railway Association, on one hand, and of the Rail manufacturers, on the other, developed a spirit of fairness and of appreciation by each side of the views of the other. It is confidently expected, therefore, that an agreement on specifications will be reached at a later meeting of the committee. A subcommittee of eight members now has the matter in hand. Statements published to the effect that one large railroad system had decided not to award its Rail contract in the way originally announced were promptly denied by that road this week. At South Bethlehem, Pa., the new Rail mill of the Bethlehem Steel Company started up August 30, and the second ingot was rolled into Rails. The mill is now at work on a Union Pacific order for 75-lb. Rails. In the past week Rail business has been light in every quarter, but there is ground for the belief that contracting in a large way will begin by October 1 or soon after.

**Structural Material.**—The Maryland Steel Company received this week the contract for the fabricated Steel required in the construction of the remainder of the Queens approach to the Blackwell's Island Bridge. Its bid was \$758,000. Over 4000 tons of Steel will be required, a considerable portion of this work having been let early in the year. While the railroads are not figuring on as much work as was under construction at this time last year, some bridge contracts of moderate tonnage are up. The St. Paul has placed 700 tons with the American Bridge Company and is making up specifications for an additional 2500 tons. The Erie Railroad is figuring on 1500 tons of bridges. Bids will come in this week for the portion of the New York Central terminal construction recently referred to, a new baggage shed calling for the most of the tonnage. Some grade crossing work at Cleveland which will require about 1500 tons is figured on, the general construction contract having already been let. Another San Francisco building is being estimated on that will require 1000 tons of Steel. Considerable work is pending at Pittsburgh, Chicago, and at Houston, Texas. The Canton River Bridge Company, Ltd., Canton, China, is asking bids on a Steel cantilever and girder bridge of a total length between abutments of 1102 ft. Structural mills continue to be well employed, current specifications being ample, and fabricating plants will be kept busy on their present contracts well into the winter. It is expected that the new Structural mill of the Bethlehem Steel Company will be rolling Gray Universal Shapes in November. We quote as follows for tidewater deliveries on shipments from mills: Beams, Channels, Angles and Zees, 1.86c.; Tees, 1.90c.; Bulb Angles and Deck Beams, 2c. On Beams, 18 to 24 in., and Angles over 6 in., the extra is 0.10c. Sales out of stock of material cut to length are made at 2¼c. to 2½c.

**Bars.**—An improved demand is observed for Bar Iron. Excellent inquiries have been received from large semi-public operations in this city. The railroads are also buying much more freely, some of them having issued requisitions which appear heavy in comparison with the business coming from such sources during the past three months. Bar Iron prices are not only firm at 1.60c. to 1.65c., Pittsburgh, or 1.76c. to 1.81c., tidewater, but the statement is made that it would be rather difficult to find a mill willing to take a heavy order at the minimum price. Steel Bars continue to be quoted at 1.60c., Pittsburgh, or 1.76c., tidewater, for remote deliveries, with orders for early shipment commanding a premium of \$2 or more per ton.

**Plates.**—Current business is decidedly light. If the Eastern mills depended to any extent upon the orders sent them from this territory they would only be able to run on part time, but it is understood that they are well supplied with work secured from other sections of the country. Prices are firmly held. Following are quotations for tidewater delivery: Sheared Tank Plates, 1.86c. to 1.96c.; Flange Plates, 1.96c. to 2.06c.; Marine Plates, 2.26c. to 2.36c.; Fire Box Plates, 2.75c. to 3.50c., according to specifications.

**Cast Iron Pipe.**—The Warren Foundry & Machine Company secured the contract for 2000 tons placed by the city of Orange, N. J., September 9. The city of Philadelphia will open bids on 2000 tons September 17. The outlook for the purchase of a heavy tonnage by New York City has decidedly improved owing to the better financial condition of the municipality, and the trade is confidently expecting orders for 12,000 to 15,000 tons to develop in the course of the next five or six weeks. The current demand, while usually comprising lots not over 500 tons, is excellent, being up to the average for the season, and small sizes are becoming scarce for prompt shipment. It would now seem quite probable that the foundries will be able to fill up for the remainder of the year. Prices are held at \$34 to \$34.50 per net ton, tidewater, on carload lots of 6-in.

**Old Material.**—A considerably better demand is reported for Cast Scrap, and some inquiry has developed for Wrought Scrap and other classes of rolling mill material. Steel is quiet. Dealers are remarkably confident, showing little anxiety to sell, but waiting patiently for the renewal of the demand, which they think cannot be long deferred in view of the heavier buying now under way by railroads and other large consumers of rolling mill products. Car Wheels are particularly scarce, but in other lines the accumulation is not becoming serious. The railroad lists for the month are quite moderate, and consequently the visible supply of Scrap is not sufficient to cause anxiety among holders. Prices are well maintained, notwithstanding the weakness in the Pig Iron market, which might have been supposed to exert an unfavorable influence. Quotations per gross ton, f.o.b. New York, are as follows:

|   |                    |
|---|--------------------|
| Old Girder and T-Rails for melting..... | \$14.00 to \$14.50 |
| Heavy Melting Steel Scrap.....          | 14.00 to 14.50     |
| Old Steel Rails, rerolling lengths..... | 18.50 to 17.00     |
| Relaying Rails.....                     | 26.00 to 26.50     |
| Old Iron Rails.....                     | 22.00 to 22.50     |
| Standard Hammered Iron Car Axles.....   | 27.50 to 28.00     |
| Old Steel Car Axles.....                | 19.50 to 20.00     |
| No. 1 Railroad Wrought.....             | 17.50 to 18.50     |
| Iron Track Scrap.....                   | 15.50 to 16.00     |
| No. 1 Yard Wrought, long.....           | 15.00 to 15.50     |
| No. 1 Yard Wrought, short.....          | 14.50 to 15.00     |
| Light Iron.....                         | 9.00 to 9.50       |
| Cast Borings.....                       | 11.00 to 12.00     |
| Wrought Turnings.....                   | 13.00 to 13.50     |
| Wrought Pipe.....                       | 12.00 to 13.00     |
| Old Car Wheels.....                     | 22.50 to 23.00     |
| No. 1 Heavy Cast, broken up.....        | 17.50 to 18.00     |
| Stove Plate.....                        | 14.50 to 15.00     |
| Grate Bars.....                         | 13.50 to 14.00     |
| Malleable Cast.....                     | 17.50 to 18.50     |

## Metal Market.

NEW YORK, September 11, 1907.

**Pig Tin.**—The strength of the Tin situation is apparent to all, and is due largely to the fact that supplies in this country are meager, and that the shortage is likely to grow more acute before the end of the month. It will be recalled that at the end of August stocks in this country were computed as 1500 tons, but this is believed to have been too large, and as but 593 tons have arrived since the first of the month, these stocks must have been drawn on heavily in the meantime. There are afloat for America some 1665 tons. The fluctuations in the market are shown in the following daily range of prices:

|                   |        | Cents.    |
|-------------------|--------|-----------|
| September 4.....  | 37.10  | to 37.12½ |
| September 5.....  | 36.65  | to 36.75  |
| September 6.....  | 36.87½ | to 36.95  |
| September 7.....  | 37.12½ |           |
| September 9.....  | 37.30  | to 37.35  |
| September 10..... | 37.20  | to 37.25  |
| September 11..... | 37.00  | to 37.10  |

Business was dull during the week, with the exception of Friday, when approximately 300 tons were sold. The large business of that day was clearly foreshadowed before noon when it was known that the largest spot holder of the

metal had advanced his price. There was also some activity in transit Tin and Tin from London on that day, which was sold at 36.60c. to 36.87½c. The market here is relatively independent of London and above parity. That market, however, closes easy to-day at £166 for spot and £165 5s. for futures. The next sale of Banca Tin will be held in Amsterdam, Holland, on September 26, and will consist approximately of 1850 tons.

**Copper.**—The Copper markets throughout the world are so demoralized to-day that any quotations are only approximate. Electrolytic Copper has been offered in Europe at 16.50c., and some of the companies making these offerings have intimated that they would accept counter bids. Even the largest and strongest of the companies, who last week announced that there would be no change in prices for some time, are waiting to accept bids at marked concessions from their published figures. As far as business in this country is concerned, there is scarcely anything to report. All quotations here are materially higher than in Europe, and whenever there has been any transaction in the past week so much secrecy has been thrown about it both by buyers and sellers that it is impossible to secure confirmation of actual prices. Sufficient to say that these have been for meager amounts and represent pressing needs by some consumers. The situation as it has developed is more one of strained finances than anything else, but Copper is being accumulated so rapidly that this burden is growing heavy and is felt even by the richest of corporations. Predictions of 15c. Copper very shortly are made with considerable freedom, and there seems to be no reason why it should not be reached even if the downward trend is arrested at that point. As has been stated before, the relative ideas of buyers and sellers are so at variance and there are so few tangible figures on which anything can be based that there is a wide difference in the matter of quotations; hence they are largely nominal. There is no doubt that some of the leading lake interests would be very pleased to accept 17c. for a round lot of Copper, but might not be willing to break their price for a carload at less than 17.50c. Electrolytic likewise, while available in Europe at 16.50c., cannot be had in this country at anywhere near that figure, and Casting grades are nominal, at 16c. to 16.50c. The break in the London market to-day, following the one of yesterday, did much to unsettle confidence. Standard warrants opened this morning at £67 10s. for spot and £67 15s. for futures, a break of £3 since last night's closing, and a total break of £7 since a week ago. The market was stronger in the afternoon, however, and closed firm at £68 10s. for spot and £69 for futures. An unusually large business was transacted, amounting in all to 2500 tons. Best Selected is nominal, at £75, which compares with £82 10s. a week ago. Some talk is heard of a curtailment of production, but the few mines which cannot be operated profitably on 12c. Copper cut so little figure in this country's total production that until the price is much lower than it is to-day there is not much likelihood of any general curtailment, even if that could ever be brought about.

**Pig Lead.**—The rapidity with which the American Smelting & Refining Company was shipping on old contracts foreshadowed an early decline, but the trade in general was scarcely prepared for the ½c. cut made September 6. This brought the price of Lead in New York to 4.75c. Spot Lead is available at 4.80c., but Lead in St. Louis can be had at 4.67½c. The London market is relatively firm at £19 15s.

**Spelter.**—A further weakening in prices has been noted. Spelter can be had at 5.35c., New York, or 5.20c., St. Louis. It is believed that large orders could be placed at under these figures.

**Ferroalloys.**—The inability of one company to make deliveries of 50 per cent. Ferrosilicon is stimulating the market, and sales for prompt deliveries have been made as high as \$106. Forward deliveries can be had at \$100. The price of Ferromanganese has declined further and shipments for the last quarter can be had on a basis of \$56, Baltimore. Spot Ferromanganese is held at \$58 to \$59.

**Antimony.**—There has been a little improvement as far as the price is concerned, but business is still very dull. Cookson's is held at 11c. and Hallett's at 10c.

**Tin Plate.**—There has been an improvement in the demand for Tin Plate in a retail way, but large business is limited. The price is unchanged, at \$4.00, f.o.b. New York, and \$3.90, f.o.b. Pittsburgh.

**Old Metals.**—The prices quoted below, representing those at which dealers would be pleased to sell at, are largely nominal. Business is one sided, with sellers anxious to unload:

|                                     | Cents.         |
|-------------------------------------|----------------|
| Copper, Heavy Cut and Crucible..... | 16.00 to 16.50 |
| Copper, Heavy and Wire.....         | 15.75 to 16.00 |
| Copper, Light and Bottoms.....      | 14.00 to 14.25 |
| Heavy Machine Composition.....      | 14.25 to 14.75 |
| Brass, Heavy.....                   | 10.75 to 11.00 |
| Brass, Light.....                   | 8.75 to 9.00   |
| Clean Brass Turnings.....           | 9.50 to 10.00  |
| Composition Turnings.....           | 11.50 to 12.00 |
| Lead, Heavy.....                    | 4.60           |
| Lead, Tea.....                      | 4.25           |
| Zinc Scrap.....                     | 4.62½          |



## The Conferences on Rails.

The joint committee representing the American Railway Association and the engineering staffs of the manufacturers of steel rails held meetings in New York on Wednesday and Thursday, September 4 and 5. G. L. Peck, general manager of the Pennsylvania lines West of Pittsburgh, who is chairman of the American Railway Association's Committee on Rails and Wheels, presided. The questions at issue between the railroads and the rail mills were discussed in the most friendly spirit and with every indication that agreement will be reached. This committee is not concerned about the question of price. That will probably be taken up finally at a meeting of the presidents of railroads and presidents of steel companies, who attended the preliminary conference at Judge Gary's office two months ago.

A sub committee of eight was appointed at last week's meeting, which will meet in New York next week and formulate a specification, which in turn will be reported to the full committee. It is believed the foundation has been laid for an agreement satisfactory to both sides.

## The Quebec Bridge Disaster.

MONTREAL, September 9, 1907.—The commission appointed by the Canadian Government to investigate the cause of the collapse of this structure began its formal sittings to-day. The previous week was wisely spent in a thorough personal examination on the part of the commissioners of such parts of the wreck as are accessible. Some interesting evidence has been brought out, however, in connection with the coroner's inquest upon the bodies of the victims. This investigation commenced September 3, and adjourned *sine die* on the 6th, to allow of the summoning of further witnesses, and perhaps to await the results of the government inquiry.

Two bridge painters testified that they had noticed a large open crack in one of the plates connecting a lower lateral to the pedestal at the foot of the main tower. Mr. McLure, engineer for the Phoenix Bridge Company, and Mr. Kinloch, inspector, were confident that no such crack existed, but that the painters had mistaken a crimp, which had been put in the plate in question to make it fit, for an open crack. In any case, such a defect could only be serious in case of a heavy wind. In the circumstances in which the accident took place, it would seem that no significance can be attached to the story of the painters.

A far more serious defect was brought to light by the evidence of Messrs. McLure and Kinloch. On August 27, two days before the disaster, it was noticed that a lower chord section, A 9 L, in the anchor arm and in the second panel from the main tower, was bent inward about  $1\frac{1}{2}$  in. This section was made up of built I beams or plate girders connected by angle lacing on their upper and lower flanges, and all four ribs were similarly deflected. This section had been somewhat injured in transportation, but had apparently been repaired to the satisfaction of all concerned. It appears to be the only accessible chord section in the anchor arm which shows distinct indications of buckling, and all the evidence so far brought out in connection with it tends strongly to support the theory suggested by the writer, and published in *The Iron Age* of September 5, that the disaster was due to the failure of the compression member in the anchor arm. So much alarm was felt on account of this member that Mr. McLure proceeded to New York to bring the matter to the attention of Theodore Cooper, consult-

ing engineer, and afterward to Phoenixville; but he had barely reached his destination when the accident took place.

The failure of this member would explain everything. The writer has, however, checked the stress in the chord, and finds that it cannot, at the time of the accident, have greatly exceeded 16,000 lb. per sq. in. Why it should have failed, if fail it did, under such load, must for the present remain a mystery. H. M. MACKAY.

## Iron and Industrial Stocks.

NEW YORK, September 11, 1907.

For the greater part of the past week the stock market was quiet, but fairly firm. On Tuesday, however, the Copper stocks declined sharply as a result of the reduction in the Calumet & Hecla dividend and reports of further weakness in the price of the metal, causing other stocks to recede in sympathy. Tuesday's prices were therefore considerably lower than those of Monday. On the most active Iron and Steel stocks the following has been the range of prices from Thursday of last week to Tuesday of this week: United States Steel common  $31\frac{1}{4}$  to  $33\frac{1}{4}$ , preferred  $94\frac{1}{4}$  to 96; Car & Foundry common  $38\frac{7}{8}$  to  $42\frac{1}{8}$ , preferred 96 to  $99\frac{1}{4}$ ; Locomotive common 53 to  $54\frac{1}{4}$ ; Colorado Fuel  $23\frac{3}{4}$  to  $26\frac{1}{2}$ ; Pressed Steel common  $29\frac{1}{2}$  to 31, preferred  $83\frac{1}{2}$  to 86; Railway Spring common  $36\frac{5}{8}$  to 38; Republic common 21 to 25, preferred  $74\frac{7}{8}$  to 79; Sloss-Sheffield common 47 to  $49\frac{1}{4}$ ; Cast Iron Pipe common  $30\frac{1}{2}$  to  $31\frac{3}{4}$ , preferred 78 to  $80\frac{1}{2}$ ; Can preferred  $48\frac{3}{4}$  to  $49\frac{3}{4}$ . Last transactions up to 1.30 p.m. to-day are reported at the following prices: United States Steel common 31, ex-dividend, preferred  $94\frac{1}{4}$ ; Car & Foundry common  $39\frac{1}{8}$ , ex-dividend, preferred  $97\frac{1}{8}$ , ex-dividend; Locomotive common  $53\frac{1}{2}$ , preferred 100; Steel Foundries common 7, preferred  $33\frac{1}{2}$ ; Colorado Fuel 24; Pressed Steel common  $29\frac{1}{2}$ , preferred 85; Railway Spring common  $37\frac{1}{4}$ ; Republic common 24, preferred  $77\frac{1}{4}$ ; Sloss-Sheffield common  $47\frac{1}{4}$ ; Tennessee Coal 135; Cast Iron Pipe common  $31\frac{1}{2}$ , preferred 79; Can common  $48\frac{1}{4}$ , preferred 50.

The annual meeting of the stockholders of the Allis-Chalmers Company, which was called at noon in Jersey City, September 5, was adjourned until September 26, at noon. No business whatever was transacted. The annual report will not be ready until about the time of the adjourned meeting. The management is awaiting the return from Europe of Judge E. H. Gary.

The eighth annual report of the American Smelting & Refining Company, for the fiscal year ended April 30, 1907, shows net earnings of \$11,509,669.20, exceeding the preceding year by \$1,348,311.08. The expenditures on account of ordinary repairs, betterments, improvements and new construction amounted to the sum of \$2,031,530.97, which was entirely deducted from the profits of the year. There has been added to the surplus of the company, after the payment of 7 per cent. dividends on the preferred and common stock, \$2,914,253.24. The surplus of the company now amounts to a total of \$13,397,028.12. From the amount of \$540,419.64, charged to profit and loss for the benefit of the profit sharing fund, there has been put aside and added to the fund established last year, which it is expected will be used at some later date as an insurance or pension fund for the benefit of laborers, the sum of \$113,783.63. This fund now amounts to \$176,238.80.

The financial statement of the Sloss-Sheffield Steel & Iron Company for the quarter ended August 31 (August partly estimated) shows profits for dividends of \$445,366, after charging interest and taxes, which is an increase of \$194,024 on the corresponding quarter of 1906. The surplus after dividends is \$206,366, an increase of \$69,024.

**Dividends.**—The American Car & Foundry Company has declared the regular quarterly dividend of  $1\frac{1}{4}$  per cent. on the preferred stock and 1 per cent. on the common stock, both payable October 1.

The American Smelting & Refining Company has declared a quarterly dividend of 2 per cent. on the common stock, payable October 15, and  $1\frac{3}{4}$  per cent. on the preferred stock, payable October 1.

The General Electric Company has declared a quarterly dividend of 2 per cent., payable October 15.

J. G. White & Co. have declared the regular quarterly dividend of  $1\frac{1}{2}$  per cent. on the preferred stock, payable October 1.

The Otis Elevator Company has declared a quarterly dividend of  $1\frac{1}{2}$  per cent. on the preferred stock, payable October 15. There will also be payable on October 15, to common stockholders, the second installment of  $1\frac{1}{2}$  per cent. of the dividend of 3 per cent. declared on the common stock March 12.

The Sloss-Sheffield Steel & Iron Company has declared a quarterly dividend of  $1\frac{3}{4}$  per cent. on the preferred stock, payable October 1.



## Mysterious Failures of Steel.

From an article contributed to the *London Times Engineering Supplement* by Walter Rosenhain we condense the following:

The explanation usually offered when a piece of metal has broken unexpectedly under test or in service is that the metal is "defective." Vague as this explanation is, it has frequently appeared impossible to go any further, though the defect might be traced ultimately to the desire of some manufacturers to reduce costs and increase profits by the neglect of precautions which metallurgical practice recognizes as desirable, but which involve somewhat increased cost of manufacture. Apart from such cases, however, it must be admitted that there are numerous instances in which metal of normal manufacture, which has not intentionally undergone any unusual treatment or lack of treatment, exhibits such defects.

### Effects of Local Deformation.

As an actual example of one kind of such failures we may take the breakages which sometimes result from local treatment applied to isolated parts of large pieces of metal. The injurious effect of punching rivet holes in boiler plates has long been recognized, but the recognition that all severe local deformation causes serious injury to steel is only of recent growth. Mild steel plates of good quality will undergo very considerable plastic deformation before actually breaking, when the deformation is applied in the form of an ordinary tensile or bending test. Under the conditions of such a test, however, the deformation is applied practically uniformly to the whole of the piece. On the other hand, suppose that a flat plate of the same steel be heavily dented with a hammer and a heavy stress be then applied to a piece cut from that part of the plate. Under such circumstances we are dealing with what is practically a composite piece of metal composed of two materials of widely different mechanical properties. Where the steel has been locally and violently deformed by the blow of the hammer its ductility has been largely destroyed while its elastic limit has been considerably raised. Assuming that a tensile stress be applied so as to be uniformly distributed at first, as soon as the elastic limit of the normal, soft portion of the metal has been exceeded this portion will yield readily, while the locally hardened portions will be unable to yield. Consequently the greater part of the load will come upon the hardened portion, and this, if the stress be intense enough or the load be applied suddenly, will give way, forming cracks which spread rapidly through the adjacent material.

Perfectly simple and straightforward as this line of reasoning will no doubt appear, its practical applications are not always realized. Thus, steel plates occasionally come from the rolling mill with more or less buckled surfaces, and these irregularities are sometimes removed by hammer dressing. If this operation is followed by a correctly conducted process of annealing no ultimate harm will be done, but in the absence of that process the plates remain in a dangerous condition. It will be seen that actual cold working or rolling of the whole of a piece of metal, although it will result in increased hardness and loss of ductility, will not set up such a dangerous state of affairs as local hardening of the kind just described. This fact must, of course, be borne in mind by the users as well as the makers of steel, since opportunities for inflicting injurious local deformation are by no means lacking in the boiler or fitting shop.

Taking again as an example a piece of metal which has fractured as the result of a purely local defect arising either from injurious treatment or from incorrect manufacture, it may easily happen that the defect which has given rise to the fracture does not recur within the piece. In such a case, if the properties of the metal adjacent to the fracture are studied by the usual methods of mechanical, chemical and microscopic testing, it is more than probable that perfectly normal results will be found, and it is, perhaps, for this reason that so many failures remain unexplained even after apparently complete investigation. In cases of the kind we are contemplating the only hope of success in finding the cause of

failure lies in a study of the actual fracture itself. Under favorable circumstances it is now possible to approach this study by the aid of the microscope in a very satisfactory manner.

### Microscopic Examination of Sections Cut Through Fracture.

Methods have recently been developed which make it possible by the aid of a bedding of copper which is deposited electrolytically, to obtain sections for microscopic examination cut through the actual fracture itself, and on these sections it is possible to follow the exact path of the break among the minutest constituents of the metal. By this means even the most intensely localized defect can be detected, provided that it is either visible in its effects upon the microstructure of the metal itself, or that it has modified the normal and characteristic mode of fracture of the material. This condition is, fortunately, fulfilled by most local defects, and more especially by those due to injurious mechanical treatment. An important condition, however, attaches to the use of this method of examining fractures, as, indeed, to all methods which rely upon the study of the fracture itself; this condition is that the fracture must be available for examination in a fresh and clean condition, and not, as is so often the case, several weeks or even months after the event, when the broken surfaces have become dirty and corroded beyond recognition. There is, moreover, another strong reason why fractured pieces should be studied immediately. It has been shown that under conditions of mechanical strain steel undergoes marked changes of properties in a short time even at the ordinary temperature. Mr. Stromeyer has recently called further attention to these changes in his paper on "The Aging of Mild Steel."\* It follows that, if the mechanical condition of the steel was concerned in the failure, this condition may only be discernible for a relatively short time after the breakage has occurred.

When we consider the large number of factors upon which the exact mechanical properties of a given piece of metal depend, it is not really surprising to find that some of these factors are not as yet completely understood; but the consequence of this incomplete knowledge is that we are left with a small but nevertheless serious uncertainty as to the complete trustworthiness of materials. Fortunately, by elaborate systems of tests and large factors of safety, we are enabled to reduce the practical consequences of this uncertainty to limits which, as a matter of statistics, are almost negligible. This is done, however, at a cost in money and materials which is an incubus on all developments of engineering practice and imposes physical as well as financial limits upon the scope of our undertakings. The plea for the exhaustive and systematic study of apparently mysterious failures is based upon the fact that the results of these inquiries will lead to a gradual elimination of this uncertainty.

**The Pennsylvania Rail Order.**—The Pennsylvania Railroad has given out the following, in view of recent newspaper statements concerning its rail orders for 1908: "Under date of May 11, 1907, the Pennsylvania Railroad Company announced that its requirements for steel rails in 1908 would be 142,600 tons, a somewhat lower figure than for 1907, owing to the fact that there would be about 20,000 tons left over this year. The reservations at the steel mills were as follows: United States Steel, 71,500 tons; Pennsylvania Steel, 30,500; Cambria Steel, 30,000; Lackawanna, 10,600; total, 142,600 tons. Though the Pennsylvania Railroad was the first to use Bessemer rails, adopting them in 1864, and has used more than any other railroad, the company has realized that the increased severity of service has made necessary the development of a rail of improved quality. The weight of locomotives and cars has increased about 50 per cent. in the last 10 years and speed has improved to about the same extent. The necessity for a stronger and less brittle rail was very thoroughly discussed at the recent meeting of the American Railway Association, and active steps were taken to secure thorough co-operation with the steel mills."

\* *The Iron Age*, June 20, 1907, page 1872.

## The Machinery Trade.

NEW YORK, September 11, 1907.

It was expected that the first two weeks of September would show some improvement in business with machinery houses, but on the contrary a decline to a smaller volume of transactions was noted, particularly during the past week, which was rather a quiet one in the trade. Houses which depend largely on orders for small lots and single tools seem to be faring better than those which cater to the larger propositions, as the present business consists for the most part of orders for small lots. The inquiries received since our last report were not especially numerous, and with a very few exceptions cover but a few tools each. It is the general opinion in the trade that this depression is but the usual summer lull a month late, and this seems plausible from the fact that an unusually heavy summer business was transacted during July and the first part of August. The gradual easing up of deliveries indicates practically no cancellations of stock orders and a confidence in the early resumption of a better demand. Dealers in this district have for some time maintained that they could sell more tools if they could get reasonable delivery, and it is believed that their contention is right, as there are probably many in need of new machines who have either bought second-hand tools for temporary use or have held off making purchases rather than wait four or five months and longer for the required machines, and who will probably come into the market as soon as shops return to normal conditions.

Machinery men who follow closely the construction of new plants and plant additions state that there are a number of large propositions in that line, buildings for which are now in course of erection and for which machinery has not been purchased. This is not in keeping with the usual practice, as invariably by the time a foundation for a factory addition or a new plant is begun machinery contracts have been let. It is thought probable that a good many of those who have improvements under way have been waiting for better terms as to delivery, and it is predicted that before long the purchasing of this class of buyers will be noticed in the trade.

There is something of a lull in the demand for machinery for export to Europe, but houses in that line are not seriously concerned about it, as it is giving them a chance to catch up on delayed deliveries. Export trade with South America and Cuba continues good, and, in fact, the demand from the island has picked up considerably of late.

### The Buffalo Foundry & Machine Company.

The Buffalo Foundry Company, Buffalo, N. Y., has taken over the business of the David Bell Engineering Works of that city, manufacturer of the David Bell steam hammers, &c., and will hereafter conduct the consolidated business of the two companies under the name of the Buffalo Foundry & Machine Company. A large machine shop will be erected by the Buffalo Foundry & Machine Company adjoining its present foundry at East Ferry street, Fillmore avenue and the New York Central Belt Line, and in addition to doing a general foundry and machine shop business it will make a specialty of the manufacture of the David Bell steam hammers, vacuum dryers and impregnators and other appliances. Henry D. Miles, president, and Michael Sullivan, vice-president, of the Buffalo Foundry Company, will continue to hold the same offices with the consolidated company, and David Bell, formerly vice-president and general manager of the David Bell Engineering Works, will be superintendent of the machine shop department.

The Dominion Steel Car Company, Canada, has about completed the buying for its large plant at Montreal, West, and it is worthy of note that a large proportion of the business placed came to this country. New York houses secured a good part of this business, and it is said that a large slice of the machine tool orders came to a prominent Liberty street firm. While New York representatives of machinery houses in other lines who were called to Montreal to confer with the Dominion Company's engineers succeeded in landing orders in most cases, it is said that dealers had to compete with representatives of foreign firms.

The Rome Locomotive & Machine Works, Rome, N. Y., has inquiries in the trade for machinery to be installed in the new boiler shop the company has in course of construction. The building will be about 70 x 125 ft., and it is expected that a complete line of boiler making equipment will be installed.

Considerable equipment will soon be purchased by the Auto-Car Equipment Company, Buffalo, N. Y., for equipping its proposed new buildings. The company now has under consideration the question of power plant equipment and expects to have that determined within the next few weeks, at which time ground will have been broken for the first

building and it will be in a position to give attention to the matter of purchasing equipment. The business of the company has so outgrown its present quarters at 77 to 79 Edward street that it has determined to erect a new building, 80 x 180 ft., two stories, with a wing 80 ft. square, to be constructed of brick and steel and to have cement floors. The plans provide for another building of similar size, to be erected early next season. The company manufactures commercial automobiles, catering especially to the lighter vehicles.

The New York & Queens County Railway Company will not do anything toward building the shops on the Flushing meadows, mentioned in these columns last week, until the late fall, and only in a general way have the plans been decided upon. It is not thought that the company will come into the market for machinery equipment until about the first of the new year. In the meantime plans will be prepared and before then the trade will no doubt hear of the extent of the contemplated improvements. It is understood that the company expects to build, in addition to large car barns, shops of sufficient size to take care of the needed repairs on the larger part of its system.

The Rainier Automobile Company has been placing some orders for machinery for its plant at Saginaw, Mich. The buying is being done from the New York office at Broadway and Fiftieth street, but we understand it includes only a few machines to complete the equipment of the plant which is now in operation.

Viele, Cooper & Blackwood, 49 Wall street, New York, have been engaged as engineers by the General Electric Company to superintend the erection of a hydro-electric plant at Shaughticoke, N. Y. The plant will be of about 15,000 hp. capacity and it is understood will furnish power for the company's Schenectady works. While it is thought that the principal equipment will be built by the General Electric Company, it is expected that there will be a good deal of buying in the accessories which that company does not manufacture.

The American & British Mfg. Company, Providence, R. I., has been awarded the general contract for equipping the power house of the Long Acre Electric Light & Power Company, New York. It is understood that the Long Acre Company expects to develop eventually about 100,000 hp., although the initial installation may not be that size. The company has arranged for the construction of a central station at 120th street and the East River and a transformer station at Forty-second street and the East River. It is understood that the American & British Mfg. Company will build the turbines for the plant, but a great deal of the equipment will probably be purchased.

The Morris & Somerset Electric Company, 131 South street, Morristown, N. J., is purchasing equipment for a power plant of 1000 hp. The company is erecting at Morristown a brick and steel building, 80 x 100 ft., and is now buying the necessary machinery, including boilers, pumps, &c. It is expected that the plant will be enlarged in the near future, and the company will at present spend \$150,000. The corporation was formed some time ago to compete with the Public Service Corporation in furnishing light and power in and about Morristown, and the new company was recently awarded the street lighting contract by the city. P. V. Stryker, who is treasurer and general manager of the company, has charge of the purchasing. The other officers are Samuel S. Childs, president; F. Landon Humphreys, vice-president, and F. B. Carson, secretary. It is understood that the Public Service Corporation will also erect a plant of similar size in order to better compete with its new rival, and the equipment for this plant, it is said, will be purchased from the company's Newark office.

The Borough of Highlands, N. J., will receive bids until September 25 for the installation of a municipal water works, including the erection of a power house, stand pipe, pipe line, compound duplex steam pump, air compressor, steam boiler and piping, &c. Runyon & Carey, 122 Market street, Newark, N. J., are the engineers.

## Philadelphia Machinery Market.

PHILADELPHIA, PA., September 10, 1907.

Recent sales of machinery and equipment have been largely on scattered lines, and comprise transactions in individual tools almost exclusively. Lathes, drills, milling machines and the other types of standard tools have been in the best demand, although sales have been confined almost entirely to the medium and smaller sizes. The hesitancy on the part of prospective buyers in placing business still continues. This is attributed by the trade to several reasons, the unsatisfactory financial conditions principally. There is a strong tendency displayed by some who could buy at the time and who are very much in need of new equipment to postpone purchases until they can get a better line on future developments. It is thought that prices may recede somewhat in some lines. It is fairly certain that they will not



work higher, and then deliveries as a rule are getting better in most cases every day. Business which has been held up over the summer has not had time to be considered, and probably about October 1, it is generally thought, some good propositions will be about ready for closing up. The local railroads, particularly the Pennsylvania, have quite a few propositions before the trade, but nothing definite can be learned about the probable closing date, and it is believed that some of them at least will be carried over to next year. Inquiries are reported more plentiful, even though they are individually small, and it is believed that a better run of business will surely develop during the early fall months.

Tool builders and industrial plants continue quite busy, but it is largely on work which was previously in hand, as new business is not coming in anything like as rapidly as old orders are being closed out. Still, practically all the plants have several months' business ahead, and in some cases even for a considerably longer period, so there is little anxiety displayed as yet as to where future business is to come from. Confidence in the future is general, although it is not expected that business will be as large as it has been in the past year or so.

The foreign demand does not appear to be very extensive. Some little business has been done by concerns in this territory, but mostly in special tools. Tool builders do not appear to be anxious for this trade, particularly if they can get hold of enough domestic business to keep them occupied.

Sales keep fairly active in the second-hand machine tool lines, although they have been almost wholly confined to the smaller lines of tools. The ability to obtain so much better deliveries on some lines of new tools has had quite a marked effect on sales in the second-hand branch of the trade. Boilers and engines have been a little more active, and we understand that some fairly good business has been done.

While the iron and steel foundries continue active, the outlook is not as good as might be desired. New business is scarce, and contracts do not come out freely, even though some concessions are made on prices. Several steel casting plants are by no means fully covered for the fourth quarter, while but little work for next year has been closed.

Frank Bancroft, who for several years has been manager of the local branch office of Manning, Maxwell & Moore, has resigned to assume the office of president and general manager of the Monarch Emery & Corundum Wheel Company, Camden, N. J. This, we are advised, will not otherwise disturb the present organization of the Manning, Maxwell & Moore forces at the local office, as S. H. Heist, who has been connected with this office for some time, will be in charge of its business.

Dodge & Day, modernizing engineers, report business in good shape. A number of large propositions are under consideration, many of which have been held up over the summer, and an active fall is anticipated. They have begun work, among other things, on a new power house, 29 ft. 6 in. by 65 ft., at Twenty-third and Noble streets, for the Walker Electric Company, which latter company will supply the power equipment. Quite a large contract was recently taken for additions to the Dayton, Ohio, plant of the American Locomotive Company, and the modernizing of the hammer shop for Fayette R. Plumb, Incorporated, of this city.

The Murray Corliss Engine Works, through its local office in the Bourse Machinery Hall, has sold the large Corliss engine which has been on display for some time to the Keystone Watch Case Company of this city. Another engine of the same type was sold the same concern. These engines will be used by the purchaser to drive electric generators for power purposes. A new engine for display purposes is to supplant the one recently sold.

William H. Dechant, Reading, Pa., has secured a contract, we understand, for the building of a 100,000-hp. electric generating plant, to be erected on the Schuylkill River at Manayunk. This is to be a plant to furnish power to a large number of factories.

The Baltimore Enamel & Novelty Company, Baltimore, Md., has under consideration quite extensive improvements to its plant. It has not been decided, however, whether these will be made in the near future or deferred until a later date.

The Newton Machine Tool Works, Incorporated, reports orders for special tools as coming in fairly well, and sales have increased materially over those of a month ago. During the month of August shipments made by this concern were the largest in its history and covered almost its entire line of tools. Orders now in hand will keep the plant fully occupied for months ahead, while the prospects for business in the fall look very promising, particularly from railroad companies in the South and West. Among recent shipments were two heavy special billet cold saws, each weighing over 34,000 lb. A special three-spindle milling machine was shipped into the Pittsburgh District, and three chord boring machines were delivered to a New York bridge building concern. Cold saw cutting off machines of all the company's various types have been shipped to different customers, some going to the Pacific Coast. Slotting machines, keyseat milling machines, rotary planers and other portable tools have been among those delivered the past month.

## Cincinnati Machinery Market.

CINCINNATI, OHIO, September 10, 1907.

A number of things of current interest combine to produce in the minds of the leading machine tool manufacturers a sense of security as to the present and a feeling of optimism for the future, despite the somewhat paradoxical condition which sees little inquiry and, as yet, little evidence of the expected fall activity. A good index of local activity is seen in the testimony of the foundries. The largest have been interviewed during the past few days and without exception all announce themselves as occupied to the limit of their capacities, and that the situation has resolved itself into a question of deliveries. Two of the largest report the month of August as the best in the history of their plants, one melter, who has been in business a long time, adding to this testimony, "the largest tonnage and the greatest receipts in cash."

The lathe manufacturers seem to be entitled to the floor this week, for one of the largest in this field reports his selling capacity greater than that of his establishment to furnish the tools. One of the oldest established manufacturers of engine lathes and radial drills, especially well qualified to speak of the local situation, says there is a little slump in both domestic and foreign inquiry, but he attributes it more to the extreme activity now on in crop producing centers, which ties up the funds of the country and engages the money dispensing interests, than to any feeling of anxiety or fear as to the future.

An element that enters into the discussion from the manufacturers' viewpoint is the improvement in transportation facilities, both from the pig iron producing and the finished tool centers. Shipments are better all round, and the fact of deliveries getting more normal adds a sense of satisfaction in the mind of the manufacturer who is being importuned on all hands for deliveries of machines and tools ordered from six months to a year ago. The question of skilled labor is a factor, and a more important one just at this juncture than anything else in this field. There is a scarcity of skilled mechanics, and cognizance of this condition has been taken in the efforts of some of our largest manufacturers, who are co-operating with the mechanical departments of the University of Cincinnati in the educating of youthful workers to take positions in the various shops when competent. The youth is given practical work in the shops and in the big establishments, dividing the week so that each side is given a commensurate training.

In the list of establishments visited and communicated with the past week there are no cancellations reported, which is a source of special satisfaction in the tool industry at this particular time. One large manufacturer of drills and lathes has about \$10,000 worth of tools on the floor ready for shipment, and as this establishment has been making heroic efforts—and successful—to catch up on deliveries and stock, it is quite probable a few men will be laid off, but none in the skilled class.

A large manufacturer of sheet metal machinery interviewed reports a growing tendency to order the larger and heavier types. This manufacturer is adding constantly to his shop equipment in an endeavor to catch up on orders; among lately installed machines are a 48-in. lathe, a gear cutter and some smaller tools.

Instancing the extremity to which tool manufacturers are driven, the installation is noted of a 10 ft. 6 in. toggle turret in the new establishment of the Lunkenheimer Company, which is to be devoted to the manufacture of a new invention of a member of the concern, the Lunken Steel Window Company. This machine, ordered for delivery last April from one of the large local establishments, was installed only a few days ago. The Fairmount home of the Lunkenheimer interests, by the way, is just now a beehive of industry; the great concrete building, in which is to be housed the new brass foundry, is up to the second floor, and the company hopes to be installed there by early spring. This building, of odd shape, built to take in a certain large piece of adjacent ground, will contain 154,000 sq. ft. of floor space. It is 37 x 154 x 200 ft., as nearly as can be figured, and will be one of the model brass foundry establishments of this country. The Lunkenheimer Company has also built a concrete garage, in which will be housed the various types of automobiles used in the business. This is 107 ft. long by about 25 ft. wide, and is so located that a model blacksmith shop is contained in a basement part.

The increasing demand for Powell steam engineering specialties makes an enlargement of the plant of the William Powell Company a necessity. Plans are being prepared to erect buildings on ground, 37 x 200 ft., recently acquired, and to increase its power plant by 200 hp.

The J. M. Robinson Mfg. Company, maker of special sheet metal machinery, reports the greatest business in its history and sales of a number of large machines. Among these are a machine for the Globe Wernicke Company, to be used in making special parts for metal letter files; one for



the Art Metal Construction Company, Jamestown, N. Y., and a 36,000-lb. machine, an extra large toggle turret, for the Midgeley Mfg. Company, Columbus.

The John J. Bruce Foundry Company, at present located in the heart of the city, has found it necessary to seek more room and will build on Colerain avenue, near the machine tool colony of that section, a concrete building, 90 x 150 ft., costing about \$20,000. The capacity of the present plant is limited to about 55 to 60 tons per day, but in the new place the company expects to handle fully three times that much.

The recently incorporated Tool Steel Gear & Pinion Company, which has secured a building in Carthage, will organize some time this week. In the meantime machinery is being purchased, and arrangements are being made to start work within 60 days. C. E. Sawtelle, the local manager of the Postal Cable Telegraph Company, is conspicuous in the organization and preliminaries.

Some local interest is taken in the plans of the International Machine Tool Company, Indianapolis, which contemplates a new factory building at Hovey and Pike streets, in that city. H. C. Brubaker, Indianapolis, is the architect.

Bids will be asked for from the offices of Rapp, Zettler & Rapp, local architects, within a couple of weeks, for buildings to be erected on the Oakley purchase of the Peck-Williamson Company, manufacturer of furnaces and ventilating devices. The new plant will be a model one, buildings to be of brick and steel and 10 in number. The power, according to present arrangements, is to be furnished from the new plant of the Cincinnati Milling Machine Company. The buildings, which have been designed by A. L. De Leeuw of Hamilton, are as follows: Office, 25 x 48 ft.; tin shop and mounting department, 70 x 50 ft.; cleaning building, 70 x 160 ft.; pattern shop, 64 x 80 ft.; pattern storage, 64 x 80 ft.; pouring building, 90 x 140 ft.; machinery molding building, 96 x 100 ft.; hand molding building, 70 x 96 ft.; charging building, 46 x 70 ft.

The Industrial Bureau of Cincinnati, W. L. Finch, secretary, is preparing to run another of its educational excursions to local manufacturing districts. A committee, which will be named at an early date, will determine the route and the factories to be included in the itinerary. This will be the third of the series. The enterprise of the bureau is very generally commended by Cincinnati merchants and citizens, as but comparatively few realize the immensity of their own manufacturing machinery interests.

The Buckeye Brewing Company will make improvements aggregating \$200,000 on the grounds adjoining its present plant on McMicken avenue. Plans are being prepared by the Cincinnati Brewery & Engineering Construction Company. Added floor space will be given the brew department, storage cellar, racking and wash rooms, hop storage and cooperage shop.

Strauss & Co. of Philadelphia have acquired the property of the United Steel & Tin Plate Company, with plants at Marietta and Newcomerstown and coal lands near Cambridge, Ohio. The master commissioners are to meet in Marietta September 16 to confirm the sale. The purchasers announce their intention of beginning the operation of the Marietta plant within a short time.

A meeting of the creditors of the Brackett Bridge Company, Glendale, Cincinnati suburb, has been called by Julius Beiser, receiver, for September 19. The plant, which occupies 12 acres of ground, was appraised at \$40,000, and the scrap iron and bridge materials on hand at \$7000. Affairs are now considered to be in good state for an early winding up of the bankruptcy, and the closing sale will be had on the date named. The receiver says he has completed all outstanding contracts, as well as some new ones secured during his incumbency.

An important meeting is scheduled for September 24 at Cincinnati, when boat owners and others interested will meet with the United States Engineers' Board to consider plans for the new railroad bridge which the Pittsburgh & Lake Erie Railroad desires to build over the Ohio River at Beaver, Pa. A meeting of the Government engineers in charge of the improvement of the Tennessee River is called for November 5 at Chattanooga.

The D. T. Williams Valve Company, Cincinnati, Ohio, whose new Hunt street factory was recently destroyed by fire, announces that it had just moved its lubricating department into the building prior to the fire and that department was the only one to suffer to the extent of tools and machinery, the patterns remaining intact in the Broadway plant. The company is now installing a new lubricating department at 410 to 412 Eighth street, which will be used as temporary quarters until the burned factory can be rebuilt. Castings and tools are being made with all possible dispatch, and the company will be in a position to make deliveries of lubricating devices about October 15.

During August, the American Car & Foundry Company shipped 10,347 cars, the largest number it ever shipped in any one month. It is expected that the company will ship very nearly as many cars this month.

## New England Machinery Market.

WORCESTER, MASS., September 10, 1907.

If there has been any change in the machinery market the past week it has been for the better. The tone is stronger, and no hint of depression appears in conversations with the dealers of Boston and Providence, the two important centers so far as dealers are concerned. Orders have not increased to any extent, but inquiries are being received forecasting business in the near future. Labor Day usually marks the height of vacation depression, and this period has hardly passed. It is too soon to see what effect the autumn will have on general conditions.

General manufacturing business has not been affected by the slight depression to so great an extent as the machine tool trade, which quite naturally is first to feel such influences. Speaking generally, most lines have been slightly affected, but some report seeing no difference. In every line the unanimous opinion seems to be that the lull is but a transient one. It is looked upon as due partly to the stringency of the money market, and partly to a very moderate feeling of unrest resulting from various influences which should disappear. With their disappearance the recent high tide of prosperity should be closely approached, though a return to the full flood of last year's business is hardly expected.

The automobile builders are going slowly in their plans for enlargement and in their purchases. Several isolated instances are reported of cancellations of orders for machinery and curtailments of orders for raw materials, such as drop forgings. The recent failures in the business have tended to cause a halt in this branch of trade. But while it is true that the automobile people will be more conservative than last season in their production for next year's market, nevertheless the general opinion is that they will soon regain their confidence. The automobile shows will be watched with unusual interest to give a gauge of the volume of buying to be expected for next season. Nobody looks to a falling off in interest in the sport and recreation, unless the long series of fatalities recorded weekly should have a dampening effect. The automobile manufacturers are coming to the opinion that the enforcement of drastic laws regulating road speed of machines will be necessary for the good of the business in re-establishing public confidence in the safety of motoring.

It is known that in a number of instances large manufacturing companies have instructed their purchasing departments to go lightly in their buying, and to place orders for material and equipment when necessary for immediate purposes only. The reason is that the condition of the money market makes it best to maintain as large a cash balance as feasible with good business methods. These establishments are full of business, and must buy equipment to some extent, and raw materials in large quantities, so that they must come into the market in the near future as large purchasers. They are not influenced by doubt of the future of their volume of business.

The summer had not been so seriously devoid of business as one might gather from the talk that has gone around in various lines of trade. A very high standard was reached last year, and it is by comparison with this extreme plane that business seems to have become depressed. Totals by months among the dealers show little falling away as compared with 1906. One large house which deals in machine tools, mill supplies and hardware, states that business for the year to August 1 was 2½ per cent. less than for the same period of last year, which was greatly in excess of preceding years. A large dealer in mill supplies reports that July and August showed larger totals than the same months of 1906, and that every sign points to a continuation of this growth. These are typical experiences, suggestive of actual existing conditions.

The labor market is a little easier than it has been, but skilled workmen are about as scarce as ever, according to the observations of the labor bureaus and the experience of most manufacturers. Few good men are being released by their employers; in fact, working forces are not being reduced. The volume of orders in hand is sufficient to maintain full operation of plants for some months to come, even if no more business were booked in the meantime, and orders are being received in all lines in material volume, though not to correspond to last year. The machine tool builders are slowly gaining on their orders, but it will be a long time before some of them are able to make early deliveries, even at the present rate of demand. With the expected resumption of good business the gain will of course become less rapid.

Large rainfalls have replenished the streams of New England, and plants which have been compelled to shut down in whole or in part because of lack of power have started up again, with every prospect that the effects of the long drought are wholly past.

The work of cleaning up the shipyard at Groton, Conn., formerly operated by the Eastern Shipbuilding Company, is progressing, and rumor has it that the property will pass into the possession of the New York, New Haven & Hartford Railroad or into the hands of a company closely affiliated with these railroad interests. The New Haven road operates a sizable fleet of steamers, and the yards are admirably adapted to the purposes of repair and of building new ships. It will be remembered that the great Pacific freighters, the South Dakota and Minnesota, were built at this yard by a company organized for the purpose, and it is consequently equipped to handle large work. Coupled with this report is the fact that the United States Government desires the property of the railroad company at Newport, R. I., for the purposes of the Navy, which would make the purchase of some other property necessary. It is said that the scrap at the Groton yard will be shipped to the Bethlehem Steel Company, Bethlehem, Pa.

The American Roller Bearing Company, South Framingham, Mass., has been petitioned into bankruptcy in the United States District Court at Boston, on the petition of the Hyatt Roller Bearing Company, Newark, N. J., and Frederick B. Hill, treasurer of the bankrupt company, has been appointed receiver, with authority to continue the business and wind up its affairs. The company manufactures roller bearings and automobile parts.

The business of the Coffin Valve Company, Neponset, Mass., is to be reorganized by the creditors. The property was recently disposed of at mortgage's sale to J. H. McCafferty, representing the creditors, and it is believed that the business will soon be re-established on a sound basis.

The Frisbie Motor Company, Middletown, Conn., manufacturer of the Frisbie motor, announces that it is to double its plant, to give an output of 300 engines a year. The business has recently been incorporated under Connecticut laws, with paid-in capital of \$11,000. Russell A. Frisbie is president, and Fred S. Bacon secretary and treasurer, both of Middletown, and Charles B. Frisbie, Cromwell, Conn., is the third incorporator.

Work has been started on the new factory of the Norwich Nickel & Brass Company, Norwich, Conn. The building will be 50 x 181 ft., three stories.

The New England Paper Box Machine Company, New Haven, Conn., is a new corporation which is establishing a shop at 424 State street, that city, for the manufacture of automatic paper box machinery. It is closely affiliated with the Wm. J. Smith Company of the same address.

The Bristol Company, Waterbury, Conn., is to erect a new factory, 53 x 170 ft., three stories, which will nearly

double the company's manufacturing capacity. The new space is made necessary by the increased demand for the Bristol recorders, of all ranges, for all commercial purposes, and for the Bristol steel belt lacing. The company reports that with the business already in sight it will not be long before the space is crowded.

The Union Mfg. Company, New Britain, Conn., manufacturer of chucks, planes, &c., is to erect immediately a large new factory building, which will be used to give needed increased manufacturing facilities.

The Globe Screw Company, Hartford, Conn., has been incorporated under Connecticut laws with capital stock of \$50,000. The incorporators are closely identified with the Henry & Wright Mfg. Company, manufacturer of drill presses and filing machines, consisting of Robert G. Henry, the president, and Daniel M. Wright, the secretary and treasurer of the Henry & Wright Company, and William G. Allen. The company is not yet ready to make announcement of its line or other plans.

The American Woodworking Machinery Company, has completed the removal of its Norwich plant to Rochester, N. Y., following out a policy of concentrating its manufacturing to as great an extent as possible. Shortly after the consolidation of various companies in the American Woodworking Machinery Company the business of C. B. Rogers & Co., Norwich, and the Glen Cove Machine Company was combined at Norwich. The business of C. B. Rogers & Co. was an old one, having been established in 1846.

A decision of interest to the machine tool trade has been handed down by Judge Brown of the United States Circuit Court at Boston in the case of the Hendey Machine Company, Torrington, Conn. against the Prentice Brothers Company, Worcester, Mass. The decision dismisses the suit, which claimed infringement of a patent issued in 1892 to Wendell P. Norton for a quick change speed engine lathe. This is understood to have been a test case, in which a number of lathe builders are interested.

## Cleveland Machinery Market.

CLEVELAND, OHIO, September 10, 1907.

A little improvement is noted in the machine tool market as compared with August, but dealers are not booking a large amount of orders. Sales are almost all confined to one or two machines for additional shop equipment. Inquiries are coming in in fairly good shape, but prospective purchasers

### CONTENTS.

|   | PAGE. |
|---|-------|
| The Canada Tool Works. Illustrated.....                       | 689   |
| Australian Trade Developments.....                            | 694   |
| No Internal Revenue Reduction.....                            | 695   |
| Switching Rates in Chicago.....                               | 695   |
| Fore River Forgings. Illustrated.....                         | 695   |
| A Bar Iron and Light Rail Mill. Illustrated.....              | 696   |
| The Minnesota Steel Company's Plans.....                      | 698   |
| The New Castle Plant of the American Can Company.....         | 698   |
| The Pittsburgh Clean-Seal Valve. Illustrated.....             | 699   |
| Skyscrapers and Fire Protection.....                          | 699   |
| Work at Canadian Iron and Steel Plants.....                   | 699   |
| The New Western Freight Classification.....                   | 700   |
| The Wolfe Contractors' Steam Shovel. Illustrated.....         | 700   |
| A Flying Machine Trophy.....                                  | 701   |
| A Standard Metric Cone for Twist Drills in Germany.....       | 701   |
| The German Iron Market.....                                   | 702   |
| A Labor Adjustment at British Shipyards.....                  | 703   |
| The Rubber Covered Wire Manufacturers.....                    | 703   |
| The Republic Iron & Steel Company.....                        | 704   |
| Electric Power in the Coal and Coke Industry.....             | 706   |
| The Buck's Company Boycott.....                               | 707   |
| The Ryerson Friction Saw. Illustrated.....                    | 709   |
| Canada and Reciprocity.....                                   | 710   |
| Further Tests of Vanadium Steel.....                          | 710   |
| The Customs Administrative Law.....                           | 711   |
| The Stoeber Pipe Bending Machine.....                         | 711   |
| Editorial:  |       |
| The Pig Iron Outlook.....                                     | 712   |
| Broad Tendencies in the Copper Markets.....                   | 713   |
| Making Up Stocks in Dull Times.....                           | 713   |
| Correspondence.....   | 714   |
| A Proposed International Tube Syndicate.....                  | 714   |
| Ore Mine Taxation in Minnesota.....                           | 715   |
| The Jones & Laughlin Steel Company as Entertainer.....        | 715   |
| The Pittsburgh Chain & Forge Company.....                     | 716   |
| Lake Superior Labor Conditions.....                           | 716   |
| The Philadelphia Foundrymen's Association.....                | 717   |
| Pig Iron Output Less.....                                     | 718   |
| Personal.....   | 719   |
| Resources of the Philippines.....                             | 719   |
| Obituary.....   | 719   |
| The Canadian Government and the Coal-Steel Dispute.....       | 719   |
| The La Belle Iron Works Annual Report.....                    | 720   |
| Car Efficiency.....   | 721   |
| News of the Works:  |       |
| Iron and Steel.....   | 722   |
| General Machinery.....  | 722   |
| Power Plant Equipment.....                                    | 722   |
| Foundries.....  | 722   |
| Fires.....  | 722   |
| Hardware.....   | 723   |
| Miscellaneous.....  | 723   |
| Opening Iron Mines in Southern Italy.....                     | 723   |
| The New Donora Billet Mill of the Carnegie Steel Company..... | 723   |
| The Iron and Metal Trades:                                    |       |
| A Comparison of Prices.....                                   | 724   |
| Chicago.....  | 724   |
| Philadelphia.....   | 726   |
| Birmingham.....   | 727   |
| Pittsburgh.....   | 727   |
| Cleveland.....  | 729   |
| Cincinnati.....   | 730   |
| New York.....   | 730   |
| Metal Market.....   | 731   |
| The Conferences on Rails.....                                 | 732   |
| The Quebec Bridge Disaster.....                               | 732   |
| Iron and Industrial Stocks.....                               | 732   |
| Mysterious Failures of Steel.....                             | 733   |
| The Pennsylvania Rail Order.....                              | 733   |
| The Machinery Trade:  |       |
| New York Machinery Market.....                                | 734   |
| Philadelphia Machinery Market.....                            | 734   |
| Cincinnati Machinery Market.....                              | 735   |
| New England Machinery Market.....                             | 736   |
| Cleveland Machinery Market.....                               | 737   |
| Government Purchases.....                                     | 738   |
| Trade Publications.....                                       | 739   |
| Hardware:   |       |
| Condition of Trade.....                                       | 740   |
| Notes on Prices.....  | 740   |
| Next Year's Retail Hardware Conventions.....                  | 743   |
| A Radical Change.....   | 743   |
| The Trades 100 Years Ago. Illustrated.....                    | 744   |
| An Attractive Carver Case. Illustrated.....                   | 745   |
| Hardware Store Advertising.....                               | 746   |
| Requests for Catalogues, &c.....                              | 746   |
| Paint Catechism for Paint Men.....                            | 746   |
| George Howard's Hardware Store. Illustrated.....              | 747   |
| Hardware Window Display. Illustrated.....                     | 748   |
| Hardware from A to Z.....                                     | 749   |
| Mechanics' Tools Window Exhibit. Illustrated.....             | 749   |
| Australian Notes.....   | 750   |
| American Axe & Tool Company's Catalogue.....                  | 750   |
| Price-Lists, Circulars, &c.....                               | 751   |
| A Local Jobber's System of Registering Orders. Illus.....     | 752   |
| Bindley Hardware Company's Catalogue.....                     | 752   |
| The Diston Handbook on Saws.....                              | 752   |
| The Success and Success Jr. Ash Sifters. Illustrated.....     | 753   |
| The Bing Glass Cone Burner. Illustrated.....                  | 753   |
| Current Hardware Prices.....                                  | 754   |



are slow about closing deals. While industrial plants do not expect the rush of a few months ago, there is a general feeling of confidence in the business world, and the delay by many in placing orders for machine tools is due to the stringency of the money market rather than to any fear that there is going to be any serious slump in business.

The situation is somewhat different in the automobile business. While some of the automobile makers are buying a tool or two occasionally, there is not the general buying movement among the automobile people that there was a year ago. By this time last year many of the automobile factories had placed large orders for new machine tools for enlargement of their plants. Not only are the automobile people not buying extensively, but some of them that placed orders a few months ago have requested that deliveries that were about to be made be held up. In view of the fact that many new automobile plants have been put in operation during the past year and others have increased their capacity considerably, and in view of the further fact that the season's output of machines was sufficient to supply the demand, it is expected that the automobile people will go rather slow in providing for further enlargements of their plants.

Machinery manufacturing plants still have plenty of work on hand, and many of them have enough orders to keep them busy for several months. While the majority of them are not getting new orders at the rate they were a few months ago, some report no falling off in the demand.

The Lincoln Electric Company, now located on East Third street, has commenced the erection of a three-story plant at Kelley avenue and East Thirty-eighth street. The building will be 50 x 150 ft., constructed of concrete blocks. When the new plant is completed the company will add several new lines to its present list of products. These will include lifting magnets, induction motors and the small sizes of alternating current generators, the large sizes now being made by the company. It has already arranged for its power equipment, but will purchase a number of machine tools, including milling machines and punch presses. The new plant, which will be ready for operation about the first of the year, will give the company 10 times its present capacity.

The Cleveland Construction Company received bids Monday and will probably close contracts this week for about \$10,000 worth of machine tools and other machine shop equipment for repair shops for the Youngstown & Ohio River, Chicago, Lake Shore & South Bend and the New York & South Shore traction lines. The orders will include lathes, shapers, drill presses, pipe threading machines and other equipment.

The Pittsburgh Foundry & Machine Company, Salem, Ohio, has commenced the erection of a new foundry, 96 x 100 ft. The company will also erect a cleaning room, core-room and other necessary buildings. It is expected that the new plant will be ready for operation November 1.

The Ohio Electrical Supply Company, Alliance, Ohio, has an inquiry out for a number of machine tools, including lathes, milling machines and boring mills.

The Sandusky Foundry & Machine Company, Sandusky, Ohio, has purchased 3½ acres of ground across the street from its plant and will enlarge its present plant. The ground purchased was formerly occupied by the plant of the Standard Wheel Company, most of the buildings of which were burned several years ago. The office buildings and power house can be used with some rebuilding, and the foundations of the remaining portions of the plant are partially intact. The Bayview Foundry Company, which has been conducted in the Sandusky Company's plant, will use one-third of the newly acquired property, where it will erect a new foundry. The space, 80 x 120 ft., which the latter company has been using will be used to extend the machine shop of the Sandusky Company. Although this company has been in operation but four years, this is the third time it has enlarged its plant.

The Skelley Mfg. Company, Canal Dover, Ohio, has been incorporated, with a capital stock of \$25,000, by Thomas J. Skelley, A. M. Davis, C. M. Immel, W. G. Immel and H. H. Hostetter. Mr. Skelley, who at present has a plant in Cleveland for the manufacture of telephone supplies, has interested Canal Dover capital in his enterprise and the company will build a new plant in that city.

The Buckeye Forge & Iron Company, Columbus, Ohio, capitalized at \$50,000, has been incorporated by Charles E. Smith, Clark E. Allen and others.

The Walnut Machine & Brass Foundry Company, Toledo, Ohio, has been incorporated, with a capital stock of \$10,000, by E. L. Rowe, E. G. Schuller, E. J. Vollmer, Amos McDonnell and Walter A. Antler. It is reported that it will take over the plant of the Aluminum Brass Castings & Novelty Company in Toledo.

A number of important changes were made in the officers of the Elwell-Parker Electric Company, manufacturer of dynamos, motors, &c., at a meeting of the directors held a few days ago. A. E. Brown of the Brown Hoisting Machinery Company was elected president to succeed S. C. Phillips, who retired from the presidency and general management about two weeks ago. Other officers elected were H. D. Coffinberry, vice-president; George C. Wing, secretary; J. H. Wheelock, treasurer; M. S. Towson, general manager.

The Enameled Pipe & Engineering Company, with headquarters in the Citizens' Building, Cleveland, has increased its capital stock from \$25,000 to \$250,000. The company has just commenced the manufacture of vitreous enameled steel acid proof pipe and fittings for use in mines where unprotected steel pipe is eaten by acids. It has arranged for the manufacture of the pipe by the Ingram-Richardson Mfg. Company, Beaver Falls, Pa. The latter company is erecting an addition to its factory, to be devoted to the manufacture of the pipe. Three furnaces will be put in, which will have a capacity to turn out 25,000 ft. of enameled pipe a month. R. F. Nailler, the inventor of the pipe, is president of the Enameled Pipe & Engineering Company. The pipe, it is claimed, has been successfully tested in Western copper mines.

## Government Purchases.

WASHINGTON, D. C., September 10, 1907.

The Bureau of Supplies and Accounts, Navy Department, Washington, will receive bids until October 1 for steam pump and other supplies for the Mare Island Navy Yard.

Proposals will be received until September 30, at the office of the United States Engineer, New London, Conn., for 40 or more 25-kw. electric generating sets, each consisting of a gasoline driven multiple cylinder vertical engine, direct connected to a direct current generator.

The following bids were opened September 3, circular No. 386, for supplies for the Isthmian Canal Commission:

Bidder 12, H. E. Boucher Mfg. Company, New York; 15, Brooklyn Forge & Supply Company, Brooklyn, N. Y.; 16, Brown Hoisting Machinery Company, New York; 18, Buffalo Steam Roller Company, Buffalo, N. Y.; 26, P. Delany & Co., Newburg, N. Y.; 28, Donegan & Swift, New York; 30, Fox Brothers & Co., New York; 31, Frevet Machinery Company, New York; 34, A. D. Granger Company, New York; 43, Industrial Works, Bay City, Mich.; 45, Kelly Springfield Road Roller Company, Springfield, Ohio; 48, Lambert Hoisting Engine Company, Newark, N. J.; 50, Lidgerwood Mfg. Company, New York; 58, Manning, Maxwell & Moore, New York; 60, Mead-Morrison Mfg. Company, Cambridge, Mass., shipment at New York; 63, Motley, Green & Co., New York; 65, New Jersey Foundry & Machine Company, New York; 66, New York Cableway & Engineering Company, New York; 69, Pacific Engineering Company, Seattle, Wash.; 70, Phoenix Iron Works Company, Meadville, Pa.; 71, Pittsburgh Industrial Iron Works, Pittsburgh, Pa.; 72, Queen City Supply Company, Cincinnati, Ohio, delivery f.o.b. New York; 73, Charles E. Robidoux, St. Louis, Mo.; 81, Stroudsburg Engine Works, Stroudsburg, Pa.; 84, Williamson Brothers Company, Philadelphia, Pa.; 88, Cleveland Crane & Car Company, Wickliffe, Ohio; 90, Excelsior Equipment Company, Pittsburgh, Pa.

Class 28. Two locomotive coaling cranes, 10 tons capacity—Bidder 16, \$16,110, 120 days; 43, \$13,970 and \$18,150, 75 days; 58, \$15,431.25, 112 days; 63, \$13,000, 120 days; 84, \$16,400, 150 days; 8, \$17,000, 180 days.

Class 29. Two locomotive coaling cranes, 20 tons capacity—Bidder 16, \$18,420, 120 days; 43, \$18,750, 90 days; 58, \$21,721.20, 140 days; 88, \$23,000, 180 days.

Class 30. Two hoisting engines—Bidder 28, \$3150, 120 days; 48, \$3690, shipment 10 days; 50, \$3400 and \$2780, 14 days; 60, \$3900, shipment, 42 days; 63, \$3627, 70 days; 65, \$3044, 120 days; 66, \$2934, 21 days; 69, \$4050, 90 days; 71, \$3915.20, 40 days; 72, \$2550, commence 60 days; 73, \$2760, 130 days; 81, \$2800, 90 days; 84, \$2300, 84 days.

Class 31. Four hoisting engines—Bidder 28, \$4500, 120 days; 30, \$3896, 70 days; 48, \$4340, shipment 10 days; 50, \$4020, 14 days; 60, \$4200, shipment 1 day; 63, \$4624, 70 days; 65, \$4164, 120 days, and \$3980, 60 days; 66, \$4300, 21 days; 69, \$4050, 60 days; 71, \$3944, 8 days; 72, \$3600, commence 60 days; 73, \$4340, 130 days; 81, \$4000, 90 days; 84, \$3400, 84 days.

Class 32. One vertical boiler, 128 hp.—Bidder 26, \$2150, 90 days; 28, \$1975, 120 days; 30, \$1574, no time; 34, \$1427 and \$1298, 150 days; 58, \$1452.03, \$1727.67 and \$2080, 120 days; 70, \$1323, 90 days; 81, \$1365, 90 days.

Class 33. One 8-ton tandem steam roller—Bidder 18, \$2675, 45 days; 30, \$2545, 25 days; 45, \$2525, shipment at once; 58, \$2217.95, 175 days, and \$2591.65, 120 days; 63, \$2500, 50 days; 90, \$2723, 25 days.

Class 36. Two hydraulic jacks, 30 tons capacity—Bidder 12, \$115.50, 40 days; 1, \$221.50, 20 days; 30, \$470, 20 days; 31, \$196.50, shipment 35 days, and \$144.38, 21 days; 58, \$191.04 and \$27.60, 45 days; 63, \$160, 40 days; 90, \$222, 25 days.

The following bids were opened September 3 for supplies for the navy yards:

Bidder 18, W. N. Best American Calorific Company, New York; 31, Baker & Hamilton, San Francisco, Cal.; 37, Bental-Margedent Company, Hamilton, Ohio; 53, Central Metal & Supply Company, Baltimore, Md.; 56, Compressed Air Machinery Company, San Francisco, Cal.; 68, Cleveland Crane & Car Company, Wycliffe, Ohio; 70, Curtis



& Co., Mfg. Company, St. Louis, Mo.; 89, Excelsior Equipment Company, Pittsburgh, Pa.; 116, R. W. Geldart, New York; 119, General Pneumatic Tool Company, Montour Falls, N. Y.; 130, Hilles & Jones Company, Wilmington, Del.; Henshaw-Bulkley Company, San Francisco, Cal.; 163, J. B. Kendall, Washington, D. C.; 168, Kenworthy Engineering Company, Waterbury, Conn.; 170, Knox & Bro., New York; 191, Manning, Maxwell & Moore, New York; 193, Manhattan Supply Company, New York; 194, Montgomery & Co., New York; 203, Niles-Bement-Pond Company, New York; 206, Northern Engineering Works, Detroit, Mich.; 230, Pittsburgh Industrial Iron Works, Pittsburgh, Pa.; 248, Rockwell Engineering Company, New York; 258, Raines & Co., New York; 260, Charles Robidoux, St. Louis, Mo.; 313, Toledo Tool & Machine Company, Toledo, Ohio; 331, Vermilye & Power, New York; 346, Whiting Foundry & Equipment Company, Harvey, Ill.; 356, Fairbanks Company, New Orleans, La..

Class 1. One steel casting annealing furnace—Bidder 18, \$2182; 168, \$2600 and \$3600; 248, \$6095.

Class 47. One 20-hp. locomotive boiler—Bidder 31, \$448.50; 56, \$500; 89, \$445; 137, \$458.50; 146, \$480; 230, \$498; 258, \$410.

Class 141. One 18-in. Universal woodworker—Bidder 37, \$800; 260, \$1376.

Class 151. Two jib cranes—Bidder 68, \$2400; 70, \$2540; 119, \$2975; 203, \$2000; 206, \$3300; 346, \$3900.

Class 152. One single punch and shear—Bidder 130, \$1045; 203, \$1112 and \$1203; 313, \$1090; 356, \$1170.

Class 224. Four suction force pumps—Bidder 53, \$73.40; 116, \$70.96; 163, \$77; 170, \$67.20; 191, \$75.04; 193, \$77.60; 194, \$73; 331, \$56.60.

Bids were opened at the office of the Lighthouse Board, Washington, D. C., September 3, for furnishing f.o.b. works boilers for the United States Lighthouse Tender Pansy as follows:

Item 1. Two Scotch marine boilers of 130 lb. pressure per square inch; 2, two Scotch marine boilers of 180 lb. pressure per square inch.

New York Shipbuilding Company, Camden, N. J., item 1, \$8150, time 120 days; 2, \$8950, time 120 days.

Harlan-Hollingsworth Corporation, Wilmington, Del., item 1, \$7760, time 100 days; 2, \$8500, time 100 days.

Newport News Shipbuilding & Dry Dock Company, Newport News, Va., item 1, \$8200, time 10 weeks; 2, \$9200, time 10 weeks.

Burleigh Dry Dock Company, Port Richmond, N. Y., item 1, \$7860; 2, \$8950; no time stated.

Shooter Island Shipyard Company, Mariner's Island, N. Y., item 1, \$7500, time 125 days; 2, \$10,000, time 125 days.

Portland Company, Portland, Me., item 1, \$8750, time 190 days; 2, \$9495, time 190 days.

Bath Iron Works, Bath, Me., item 1, \$8650; 2, \$8900, time 100 working days.

Bids were opened at the office of the Isthmian Canal Commission, circular No. 385, August 30, for furnishing 12 four wheeled, saddle tank locomotives for construction service, as follows:

American Locomotive Company, New York, \$42,600; delivery Colon, commence in 30 and complete in 75 days; alternate bid on own standard engine of the size specified in circular, \$41,100; delivery in Colon in 75 days.

Burnham, Williams & Co., Philadelphia, Pa., \$47,640; delivery Colon, commence in 90 and complete in 120 days.

Davenport Locomotive Works, Davenport, Ia., \$36,966; delivery Colon, commence in 35 and complete in 70 days; alternate locomotives set up ready for operation on dock at Colon, \$37,956; commence in 35 and complete in 70 days.

Lima Locomotive & Machine Company, Lima, Ohio, \$43,200; delivery Colon, commence in 120 and complete in 210 days; alternate for erection on dock at Colon, \$46,800; commence in 120 and complete in 210 days.

H. K. Porter Company, Pittsburgh, Pa., \$42,480; delivery Colon, commence in 27 and complete in 75 days.

Vulcan Iron Works, Wilkes-Barre, Pa., \$39,600; delivery Colon, commence in 40 and complete in 70 days; alternate, if services of erecting engineers are not desired, will make a reduction on the price of the first proposition of \$50 per locomotive, making the total, \$39,000; delivery commence in 40 and complete in 70 days.

Ernest Wiener Company, New York, \$44,400; delivery Colon, commence in 250 and complete in 300 days.

Bids for constructing two steel twin screw suction dredges for New York Harbor, N. Y., were received by J. C. Sanford, major of engineers, U. S. Army, Philadelphia, Pa., August 30, as follows:

Item 1, construction of one dredge; 2, construction of two dredges.

Maryland Steel Company, Sparrow's Point, Md., item 1, \$375,000, 9 months and 15 days; 2, \$742,850, 10 months and 25 days; delivered at Sparrow's Point, Md.

Fore River Shipbuilding Company, Quincy, Mass., item 1, \$510,000, 13 months; 2, \$998,000, 14 months; delivered at Quincy, Mass.

New York Shipbuilding Company, Camden, N. J., item

1, \$415,000, 12 months; 2, \$790,000, 14 months; delivered at Camden, N. J.

Newport News Shipbuilding & Dry Dock Company, New York, N. Y., item 1, \$420,000, 12 months; 2, \$820,000, 14 months; delivered at Newport News, Va.

Under bids opened July 30 for supplies for the navy yards, the A. D. Granger Company, New York, has been awarded class 115, one vertical tubular boiler, \$557.

## Trade Publications

**Water Purification.**—Wm. B. Scafe & Sons Company, Pittsburgh, Pa. Catalogue. Size 8 x 10 in.; pages 96. This catalogue is rather more than that term would signify, and entirely deserves the classification given it on the title page, "An Illustrated Treatise on the Purification of Water." In the course of a general discussion of the subject it bears particularly upon the Scafe and We-fu-go systems for filtering, softening and purifying water. In its 25 years of experience the company has installed over 500 water softening systems and several thousand filtering systems. It naturally claims some right, therefore, to be considered an authority on the subject, and the statements contained in this work will be of value to engineers and users of water in the industrial arts. It treats of what the impurities in water are, how they may be removed, the effects of water softening, and types of softening and purifying systems, illustrating their parts in considerable detail and describing their action. Boiler scale is another subject treated of.

**Gasoline Engines.**—Kneeland Mfg. Company, Battle Creek, Mich. Catalogue. Describes the Kneeland four-cycle vertical engine. Attention is called to the adaptability of this engine to portable uses. Illustrations are given of a portion of the secondary gear and a device for preventing recoil, or kicking, when the engine is being started. A special 1½-hp. engine designed to operate cream separators and dairy machinery is also shown and described.

**Gas Producer Engine Set.**—Weber Gas Engine Company, Kansas City, Mo. Catalogue No. 22. Following a brief outline of the development of the business, complete and sectional views of the single, double and triple cylinder gas, gasoline and producer gas engines built by the company are shown, together with complete detail of various parts of the mechanism. A special feature illustrated and described is a flexible link coupling for the direct connecting of an engine and generator. The closing pages deal with the Weber suction gas producer, the operation of which is clearly shown in a sectional view. On the last page of the catalogue is given a table showing comparative costs of fuel for steam, oil and gas engines and current for electric motors.

**Power Transmission Appliances.**—Reeves Pulley Company, 68-70 South Canal street, Chicago, Ill. Catalogue No. 6. Size 5½ x 8¾ in.; pages 308. Cloth binding. Contains complete description of the line of power transmission machinery manufactured and handled by the company, together with plentiful illustrations. Among the new features noted in this catalogue are tight and loose wood split pulleys; particular attention is called to wood pulleys of extraordinary size, of which the company makes a specialty, having turned out such pulleys up to 20 ft. in diameter with 52 in. face. An improved design of the Reeves split friction pulley clutch is also shown, and a new line of double braced self-oiling hangers. A device recently perfected, which is illustrated, is a right angle drive. A brief description is given of the Reeves variable speed transmission, fuller details of which are furnished in a special catalogue devoted to it. The catalogue is supplemented with lists and tables of valuable data relative to transmission equipment.

**Brass and Copper Products.**—Michigan Copper & Brass Company, Detroit, Mich. Pamphlet. Announces the completion of its new copper and brass rolling mill plant, construction of which was begun a little more than a year ago. The mill is now in full operation, and for the present its product will be confined exclusively to the manufacture of brass and copper in sheets and rolls, brass and copper wire, rods and tubing. It is stated that its products will be restricted to high grade materials. A distinctive trademark of attractive design has been adopted by the company and duly registered. George H. Barbour is president; James E. Danaher, first vice-president and treasurer; D. M. Ireland, second vice-president; James T. Whitehead, secretary, and Jeremiah Howe, superintendent.

**Lubricating Oil.**—Charles H. Besly & Co., 15 South Clinton street, Chicago, Ill. Circular. Concerns Helmet oil and its many useful applications on automobiles, farming machinery, locomotives, electric motors, elevators, shafting and machinery of all kinds. The remarkable statement is made that "Helmet oil, used according to directions, will save not only 50 per cent. in cost, but from 300 to 500 per cent. in bulk."

**Water Main Tapping Machines.**—Waterworks Equipment Company, 180 Broadway, New York City. Mailing card. Shows drawings of a No. 2 water main tapping machine driven by a 5-hp. electric motor, and also by a 5-hp. gasoline engine. This machine is similar but smaller than the No. 4 machine described in *The Iron Age* April 18, 1907; this one cuts holes up to 24 in. in diameter, while the larger one has twice that maximum capacity.

# HARDWARE

**T**HERE has been exaggeration and more publicity and discussion than the importance of the transaction calls for, in regard to the contract which, according to the admission of Mr. Haldane, the war secretary, was recently made by the British Government with prominent American manufacturers of Horseshoes. The facts are that during the protracted and inglorious Boer War a good many Shoes were procured by the government for the South African army in the operation of which the British Cavalry played a conspicuous if not distinguished part. Since then the transactions between the British War Department and this country have been intermittent and have covered only limited quantities of shoes. Recently, however, these purchases have given promise of assuming larger proportions, and an order amounting to about 100 tons—only half the quantity named by the daily press—was placed with a well-known American manufacturer. It appears that the price was something like 15 per cent. below that of the English makers, while at the same time there was the assurance of quicker delivery and perhaps better goods. It appears not unlikely that the American manufacturers were enabled so materially to underbid their British competitors because of a combination between the English manufacturers, in view of which a somewhat artificial price was established. At any rate the goods were bought, delivered and presumably paid for, the English manufacturers aggrieved and the public excited over the fact that the government, the guardian of the welfare of the people, had the temerity to pass by the English makers and purchase the products of the country's great rival in supplying the markets of the world.

It remains to be seen whether the agitation in England on this subject and the bringing out of the facts in the case will deter the government from soliciting further bids from abroad. It may be that giving heed to popular clamor the government will confine its purchases to goods of English manufacture. This is a type of protection which may be put in force in a free trade country, making it easy for manufacturers to get together and agree upon prices, untroubled in making tenders for government contracts by the apprehension of lower bids from the manufacturers on this side of the sea. Popular criticism and an unreasonable sensitiveness on the part of the public in regard to the purchase of foreign goods will probably deter the government from placing further orders in this country, thus subjecting them to an unbusiness-like restriction which would not be tolerated in connection with individual and private enterprise.

Fortunately there are other and broader markets open before our manufacturers whether or not a good customer of unquestioned responsibility, but whose business has not been of any great amount is to be lost by this country. As the English War Department turns again, perhaps reluctantly, to the English manufacturers, there is no doubt that an illustration is furnished in this incident of the ability of this country to make goods for foreign markets and a suggestion of the success which is gradually being achieved. A splendid foundation has already been laid and only for the insistent pressure of the home demand there would be a much more serious, strenuous and persistent effort made to occupy the

foreign field. With a lessening of the great volume of business within our borders which must be reckoned with in the not remote future, it is safe to predict that our merchants and manufacturers will be heard from in many a market in which they now have only an inconspicuous place. In this connection it is interesting to note that notwithstanding the difficulties under which trade is conducted with the Latin-American countries lying south of us, the lack of banking and shipping facilities especially, there is a steadily growing business with these countries, with the promise that trade will in the next few years assume materially greater proportions.

## Condition of Trade.

The hardware market has developed few new features during the past week. There is a gradual resumption of activity under the influence of the entrance on fall business, those who make and distribute the goods applying themselves more earnestly and aggressively to the work of factory and store. There is thus an increasing volume of business in which the jobbers, who are well stocked, are having a good share, as their travelers are visiting the smaller merchants and looking with characteristic attention after their interests, with a view to enabling them to have their stocks ample and well assorted. Manufacturers, while reporting something of a renewal of activity, refer to the evidence of a reasonable conservatism on the part of merchants, and in general a caution and care in buying, which has not been characteristic of the trade during the past year or two. It is conceded by many, so far as business in general is concerned, without any definite indication of a severe reaction, that there is for the time, being at least a moderate restriction of enterprise and a disposition to slacken the pace a little. In this feature of the market at large, Hardware and its allied lines sympathize, but at the same time there is confidence that the season on which we have entered will be characterized by a good trade. The crops certainly are such as to give an excellent foundation for continued commercial activity, as they are, taken all in all, of about average volume, and will command especially good prices, with unusual opportunities for shipment to foreign markets. The break in Copper is having its effect on Copper products and goods into which this material enters, and a good many reduced quotations are being made along these lines. In some other lines irregularities in price are creeping in, owing largely to the desire of manufacturers to keep their order books well filled. The financial situation throughout the country shows evidence of improvement, but a good deal of complaint is made by the commercial classes of difficulty in collections. This, however, is not unusual at this season, and the existing conditions, while causing some inconvenience, seem to give no ground for especial solicitude.

## NOTES ON PRICES.

**Wire Nails.**—New orders are being received by the mills in fair volume at the advanced price, although many large buyers placed orders for a sufficient quantity of Nails to cover their requirements for some time, before the higher prices were announced. The mills have a large amount of business booked, and shipments are heavy. Indications point to a continuance of present conditions



for some time to come. Quotations are as follows, f.o.b. Pittsburgh, plus actual freight to point of delivery, 60 days, or 2 per cent. discount for cash in 10 days:

|  |        |
|--|--------|
| Carloads, to jobbers.....              | \$2.05 |
| Carload lots, to retail merchants..... | 2.10   |

**New York.**—Local jobbers of Wire Nails have advanced quotations for small lots at store to \$2.35, base, to conform to the recent advance of 5 cents per keg at mill. Nails could be sold for less than this price as the stocks now on hand were in most cases purchased before the mill advance, but the disposition among the merchants is to maintain prices.

**Chicago.**—The recent advance has apparently interposed no check to the demand, which continues strong and active. Both new orders and specifications against old contracts are unusually heavy and there are no indications pointing to reaction for months to come. Quotations are as follows: \$2.23 in car lots to jobbers, and \$2.28 in car lots to retailers, with an advance of 5 cents for less than car lots from mills.

**Pittsburgh.**—Manufacturers of Wire Nails advise us that the recent advance of 5 cents per keg is being rigidly held and a fair amount of new business is being entered at the higher prices, but a number of the large consumers covered their requirements for some time ahead, previous to the advance in prices. Conditions in the Wire Nail trade continue very satisfactory, the mills having large tonnage on their books, the supply of Steel and of cars is ample and shipments are exceedingly heavy. The mills anticipate that present active conditions in the Wire Nail trade will continue for the balance of this year. Quotations are as follows, f.o.b. Pittsburgh, plus actual freight to point of delivery, 60 days, or 2 per cent. discount for cash in 10 days:

|  |        |
|--|--------|
| Carloads, to jobbers.....              | \$2.05 |
| Carload lots, to retail merchants..... | 2.10   |

**Cut Nails.**—The automatic advance of 5 cents per keg was put into effect September 5 by the Cut Nail Association. It appears that outside mills are slow in adopting this price, and that some Western mills are still offering Nails at \$2.10 base, and for large and acceptable specifications this price is sometimes shaded. The market is not regarded as being particularly strong at the advance. The advance made by the association results in the following quotations, f.o.b. Pittsburgh: Carload lots, to jobbers, \$2.15; less than carloads, to jobbers, \$2.20; less than carloads, to retailers, \$2.30. Iron Cut Nails at points west of and including Buffalo and Pittsburgh are held at 10 cents advance on Steel Cut Nails.

**New York.**—Jobbers at this point have advanced their quotations for small lots of Cut Nails at store to \$2.35 base, in view of the 5-cent advance in mill price made by the Cut Nail Association. The stocks on hand were, of course, purchased before the advance, but in general the new price is well maintained.

**Chicago.**—Although according to prior arrangement the price of Cut Nails should be automatically advanced by the recent advance in Wire Nails, it is likely that there will be no uniformity of action to that end until after the next meeting of the Association. Present prices are being well maintained, but whether another upward move would be firmly sustained is of course open to question in the face of only a fair demand. Quotations are as follows: Iron Cut Nails, car lots, to jobbers, \$2.38; to retailers, \$2.43; Steel, to jobbers, in car lots, \$2.28; to retailers, \$2.33.

**Pittsburgh.**—We understand some of the Eastern Cut Nail mills are now quoting on the basis of \$2.15 f.o.b., Pittsburgh, for Cut Nails in carload lots. However, one or two of the Western mills have not made an advance in prices, continuing to quote on the old basis of \$2.10 per keg, f.o.b., Pittsburgh. The amount of new tonnage being entered is relatively small, but the mills still have a good many contracts on their books on which buyers are specifying freely, and shipments by the mills are fairly heavy.

**Barb Wire.**—Mills are busy filling contract orders. New business is rather light in amount. The market is firm. Quotations are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

|  | Painted. | Gal.   |
|--|----------|--------|
| Jobbers, carload lots.....             | \$2.20   | \$2.50 |
| Retailers, carload lots.....           | 2.25     | 2.55   |
| Retailers, less than carload lots..... | 2.35     | 2.65   |

**Chicago.**—Heavy shipments on old contracts continue to engage the energy of the mills. New business, though light is all and more than might be expected at this time of the year. We quote as follows: Jobbers, Chicago, car lots, Painted, \$2.38; Galvanized, \$2.68; to retailers, car lots, Painted, \$2.43; Galvanized, \$2.73; retailers, less than car lots, Painted, \$2.55; Galvanized, \$2.85; Staples, Bright, in car lots, \$2.35; Galvanized, \$2.65; car lots, to retailers, 10 cents extra, with an additional 5 cents for less than car lots.

**Pittsburgh.**—New business is somewhat light, but some fairly large contracts were placed by consumers prior to the recent advance in prices. Specifications on old contracts are still coming in freely, and shipments by the mills are heavier than usual in this late season of the year. The tone of the market is very strong. Quotations are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

|  | Painted. | Gal.   |
|--|----------|--------|
| Jobbers, carload lots.....             | \$2.20   | \$2.50 |
| Retailers, carload lots.....           | 2.25     | 2.55   |
| Retailers, less than carload lots..... | 2.35     | 2.65   |

**Smooth Fence Wire.**—Demand is heavy, and prompt shipments are being insisted upon from mill, on contract specifications. Quotations are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

|                          |        |
|--------------------------|--------|
| Jobbers, carloads.....   | \$1.90 |
| Retailers, carloads..... | 1.95   |

The foregoing prices are for base numbers, 6 to 9. The other numbers of Plain and Galvanized Wire take the usual advances, as follows:

|                    | 6 to 9 | 10  | 11  | 12  | 12½ | 13  | 14   | 15   | 16 |
|--------------------|--------|-----|-----|-----|-----|-----|------|------|----|
| Annealed.....Base. | \$0.05 | .10 | .15 | .25 | .35 | .45 | .55  |      |    |
| Galvanized....     | \$0.30 | .35 | .40 | .45 | .55 | .65 | 1.05 | 1.15 |    |

**Chicago.**—From all sections of the country comes an insistent demand from Fence manufacturers and other consumers of Wire for shipments to supply current needs. Stocks are light and it is evident that orders represent actual consumptive wants rather than speculative demand. Quotations are as follows: In car lots, to jobbers, \$2.08 f.o.b. Chicago, and to retailers, \$2.15.

**Pittsburgh.**—Demand for Fence Wire particularly from the South is unusually heavy, and the mills are filled up with tonnage for some time ahead. We are advised that the recent advance in prices is being firmly held, but a good many of the larger buyers placed contracts prior to the advance on which they are specifying freely. Quotations at the 5 cent advance are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

|                          |        |
|--------------------------|--------|
| Jobbers, carloads.....   | \$1.90 |
| Retailers, carloads..... | 1.95   |

The foregoing prices are for base numbers, 6 to 9.

**Bolts, Carriage and Machine.**—Several manufacturers of Bolts are still slow in deliveries, and it is safe to say that most have a fair quantity of work ahead. At the same time an increasing eagerness for new business is evinced by some, showing that they are rapidly catching up with their orders. It is suggested that manufacturers have been spoiled by the long continued period when they had a large accumulation of orders and are trying to keep an undue amount of business in hand. The market continues to reflect the easier tendency recently noted in these columns, which is now observed not only in quotations on heavy goods but on the smaller sizes as well. Concessions are moderate, amounting to not more than from 5 to 10 per cent.

**Sash Cord.**—Good buyers are watching the Sash Cord market with much attention. Until recently there has been considerable talk of a possible advance, but many now show a disposition to change their point of view. Indeed, it is rumored that the harmony which has for some time existed among manufacturers has been somewhat disturbed. It is pointed out, however, that Cord is not likely to decline much while cotton holds on its present level.

**Shot.**—The Shot manufacturers announce an advance



in price of 5 cents. Quotations are now as follows, subject to a discount on ton lots and upward of 10 cents per bag of 25 lb.:

|                                      | Per 25-lb. bag. | Per 5-lb. bag. |
|--------------------------------------|-----------------|----------------|
| Drop Shot, sizes smaller than B..... | \$1.95          | \$0.45         |
| Drop Shot, B and larger sizes.....   | 2.20            | .50            |
| Buck and Chilled Shot.....           | 2.20            | .50            |
| Dust Shot.....                       | 2.40            | .55            |

In anticipation of this advance there has been, it is understood, a liberal placing of orders by the jobbing trade at the slightly lower price announced in August.

**Seat Springs.**—The market for Painted Seat Springs is characterized by a firm tone. There has been some revision of prices by the manufacturers involving an advance on some goods and the terms of payment have been changed to 30 days or 1 per cent. discount for cash in 10 days instead of 60 days and 2 per cent. for cash in 10 days as heretofore. The terms are thus the same now on Seat Springs as on Carriage and Wagon Springs.

**Wire Coat and Hat Hooks.**—The manufacturers of Wire Coat and Hat Hooks have recently made a change in the list prices of the 2½-in. goods; the 3 in. and 3½ in. remaining unchanged. The new list prices of the 2½-in. are as follows, subject to a discount of 70 per cent. to 70 and 10 per cent.

|                | Per gross. |                    | Per gross. |
|----------------|------------|--------------------|------------|
| Japanned ..... | \$2.35     | Brass Plated.....  | \$3.85     |
| Coppered ..... | 2.20       | Nickel Plated..... | 4.40       |
| Bronzed .....  | 2.65       | Brass Wire.....    | 13.50      |
| Tinned .....   | 3.10       |                    |            |

**Coil Chain.**—Reports have been current of moderate concessions in the price of Proof Coil Chain owing to the fact that pending a change in the manufacturers' organization the market has been an open one. Although there was an effort to maintain prices some disposition was shown by some of the manufacturers to corral a little extra business by a slight shading of established quotations. The market is assuming a rather more regular aspect, however, and those in a position to know express the belief that this inequality is only temporary and that former prices will be reaffirmed and maintained as in the past.

**Scythes.**—As stated in our last issue the prices on Scythes just announced for 1908 show an advance of 75 cents per dozen. They are represented by a discount from list of 75 cents per dozen on orders entered and specified before December 1, with an additional discount of 25 cents per dozen for payment in November, this deduction being reduced to 20 cents on December payments, 15 cents on January, 10 cents on February and 5 cents on March payments. On orders specified after December 1 the discount will be 50 cents per dozen instead of 75 cents, named above. In addition to these discounts there are further rebates which will be given to the larger houses according to their standing on the classified lists.

**Shovels.**—Steadiness and a good demand are characteristic of the Shovel market. Most manufacturers are put to it to keep up with the orders offered them, and deliveries on leading lines are slow. Short supplies of Steel and the increased cost and scarcity of handles are referred to as adding to the stiffness of the market. Prices are well maintained by the constituent companies of the Ames Shovel & Tool Corporation and it is now generally understood that the so-called independent producers are working together, with a view to maintaining prices. The market is thus characterized by a good tone and somewhat more regularity than has frequently prevailed.

**Builders' Hardware.**—There is little change in the market for Builders' Hardware, which continues to have a somewhat easier tone. Concessions in prices are reported on some regular goods, such as Rim Locks, Front Door Locks and Sets, Sliding Door Sets, Sash Fasteners, &c. Keen competition is observed for desirable orders, with an increasing disposition on the part of the leading interests to meet the prices of smaller manufacturers.

**Bright Wire Goods.**—The tendency to a lower level of prices on Bright Wire Goods is increasingly apparent. Reference was recently made in these columns to the fact that one or more of the manufacturers were shading established quotations. Concessions are now more or less

general, although it may be supposed that they are confined for the most part to the larger buyers.

**Steel Goods.**—The announcement of next season's prices on Steel Goods is still delayed, but is daily expected by the trade.

**Rope.**—The demand for month of August is reported to have been less than during July, and also as falling behind August of last year, but this month, thus far, has shown an improvement in the volume of orders. The market for Fiber has recently been inactive, with a leaning towards lower prices on account of the lack of interest shown by Rope manufacturers in making purchases. Under these conditions the market for Rope is easy at the following quotations: Pure Manila, 12½ to 12¾ cents; B quality, 11½ to 11¾ cents; Pure Sisal, 9 cents; lower grades Sisal, 7¾ to 8 cents; No. 1 Jute, ¼ in. and up, 9 cents; No. 2 Jute, 8½ cents.

**Window Glass.**—There is nothing new in the Window Glass situation as no official information regarding the exact figures of the wage scale has been received by manufacturers, according to reports. There appears to be no doubt, from what has leaked out in reference to the scale, that the cost of manufacturing the majority of the sizes of Glass will show a substantial increase over that of last year. It is understood that fires have been lighted in a number of factories, but this is no evidence that they start soon, if the wage scale is not satisfactory to the companies. Local demand is very quiet and prices are reported as ranging, according to the anxiety of the seller, from 90 and 10 to 90 and 15 per cent. discount on single, and from 90 and 10 to 90 and 20 per cent. discount on double strength Glass. This is from the jobbers' list, October 1, 1903. Western jobbers' discounts are reported as being 90 and 10 per cent. discount for the first three brackets of single thick; 90 and 15 per cent. for other brackets of single thick and 90 and 20 per cent. discount for all sizes of double thick, from the same list.

**Linseed Oil.**—An advance of 1 cent per gallon was made in the crushers' price of Oil on September 1. The upward advance in Flax Seed and resulting strength in Linseed Oil was the cause of the advance. While the damage to Seed by frost is generally believed to be comparatively light and the estimates of the new crop large, Seed is coming in slowly. The majority of Oil mills have been shut down for from four to six weeks, and during that time stocks of Oil have been considerably reduced. The present price of Seed is too high to make it profitable to buy and crush at the price Oil is now bringing. Large buyers of Oil are awaiting developments of the Seed crop before placing contract orders. New York quotations for Oil, according to quantity, are as follows: City Raw, 44 to 45 cents per gallon; Out of Town Raw, 42 to 44 cents per gallon; Boiled Oil is 1 cent a gallon over Raw.

**Spirits Turpentine.**—The decline in prices for the past week amounts to 3 cents per gallon. The cause of the continued decline is attributed to a war being waged in the South between the two large Turpentine companies for control of the market, a recurrence of a similar fight which took place some time ago. If it results in the control of the market by one holding concern prices probably will be advanced, but before that time they may drop lower than the present level. New York quotations are as follows, according to quantity: Oil Barrels, 54 to 54½ cents; Machine Made Barrels, 54½ to 55 cents per gallon.

**Copper Products.**—There are irregular and unsettled conditions in the Copper market, following the declines of 3 and 4 cents per pound of September 4, notwithstanding the fact that lower figures had previously announced. At present prices the business is only for pressing wants and in such lines as must be covered to meet the current demand. While no one knows what the future may lead to there seems to be no confidence that bottom has been reached. The market is reflected in the following figures which are mainly base prices, viz.: Sheet Copper, 24 cents per pound base; on Sheet Brass there are changed schedules that are said to be equal to about 10 per cent. discount from list; Seamless Copper Tubes 26 cents per pound, base; Seamless Brass Tubes,

22 cents per pound, base; Bare Copper Wire 20 $\frac{1}{4}$  cents per pound car lots at mill; Brass Rods 18 $\frac{1}{4}$  cents per pound, base; Brazed Brass Tubing 25 $\frac{1}{4}$  cents per pound, base; Soldering Coppers 25 cents per pound, base, in large lots, smaller quantities and small sizes correspondingly higher, as heretofore; Tobin Bronze 20 cents per pound, base; Tobin Bronze Rods 26 cents per pound, base; Copper Rivets and Burrs 45 and 2 $\frac{1}{2}$  per cent. discount; Yellow Metal Sheathing 18 cents per pound, base and Yellow Metal Rods 19 cents per pound, base.

**Copper Kettles.**—A reduction of 1 to 2 cents per pound is reported in manufacturers' prices on Copper Kettles. The market may now be represented in a general way by a quotation of about 28 cents per pound to retail buyers.

### NEXT YEAR'S RETAIL HARDWARE CONVENTIONS.

**A**T the quarterly meeting of the Executive Committee of the Minnesota Retail Hardware Association, held on the 3d inst., it was decided to hold the 1908 meeting at St. Paul, February 25, 26, 27 and 28. The scene of the proceedings will be the Auditorium, which is well adapted to convention purposes and will also amply accommodate the numerous Hardware exhibits which will doubtless be a feature of the occasion.

The Executive Committee of the Ohio Hardware Association met at Columbus on the 4th inst., and decided to hold the next annual convention in that city February 25, 26 and 27. The sessions of the convention will be held in the auditorium of the Chamber of Commerce Building. Memorial Hall has again been rented entire for the purpose of accommodating the Hardware exhibits of manufacturers and jobbers, made in connection with the convention. The committee has under consideration some new features for the coming meeting, which it is hoped will add to its interest and practical value. No effort will be spared to make the 1908 gathering educational as well as enjoyable. The committee in charge of the Hardware exhibition has been in consultation with a prominent architect with a view to getting up something new to offer exhibitors, and as a result it is expected that next year's collection of displays will be even more attractive and effective than that of 1907.

The Executive Committee of the Retail Hardware, Implement and Vehicle Association of Texas, J. W. McManus, Dallas, secretary, has selected January 21, 22 and 23 next as the time for the annual convention. It will be held in Dallas. The committee also decided to test the constitutionality of the law lately put into effect in Texas by which sellers of Firearms in that State are subjected to a tax of 50 per cent. on the gross sales of these goods. The effect of this law would be to divert the business in this line to houses outside the State, notably the catalogue houses, and appeal will be taken to the courts. The membership of the association has lately shown a material increase.

**THE PARLIN & ORENDORFF COMPANY**, Canton, Ohio, announces that it has taken over the business formerly conducted by W. Johnson & Co., Ltd., and has incorporated at Winnipeg, Manitoba, the Parlin & Orendorff Canadian Plow Company, the Canton company transferring to the new concern its Canadian business and good will. The Parlin & Orendorff Canadian Plow Company will carry stocks of Implements, Wagons, Vehicles, Sleighs, Hay Presses, Scrapers, Road Graders, Pumps, Safes, &c., at Winnipeg, Regina and Calgary.

**THE J. M. THOMPSON & SONS HARDWARE COMPANY**, Owatonna, Minn., is about concluding a two weeks' special sale of fine quality Shears, Pocket Knives and Razors, referred to in large newspaper advertising announcements as "Three Big Bargains that you cannot afford to overlook." In addition to price inducements, a shaving mug, brush and soap are given free with every Razor sold during the progress of the sale.

### A RADICAL CHANGE.

BY OBSERVER.

**T**HERE are often cases where changes in long established customs, habits or surroundings in business come very hard and cause real pain to one or more of the parties involved. In such instances, if a change is really desirable, the hardest and most abrupt way of bringing it about is sometimes the best.

A young fellow once went to work for a Hardware merchant. He was a clear headed, trustworthy lad, and persevered in his first position until he became his employer's right hand man. As the years went by and the employer got well past middle age, he conceived the idea of reducing his care and responsibility by taking the clerk, then about 30 years old, into partnership. An arrangement was made whereby the younger man could piece out his savings with a small loan and buy a one-fourth interest in the business, which he did. As time went on and he gained in experience and authority he saw that the store was being run on a basis which, while it might have done very well a quarter of a century ago, was not bringing him the returns he ought to expect on his investment. Posting himself by observation, by reading the trade journals, and by conversation with traveling men, he soon learned ways of improving almost every department of the business; but his senior partner and long time employer vetoed everything that he suggested. Moreover, he was so accustomed to defer to his authority, so grateful and so much attached to the old gentleman that he would not press his personal wishes and schemes, although he knew they were for the best interests of both.

Nothing troubled him more or seemed more detrimental to their success than the slovenly arrangement of the store which made it impossible to display goods in an attractive way. One night, when he was talking matters over with his wife, she suggested that the next time the senior was laid up with his rheumatism the young man bring in some carpenters, tear out the old bins and shelving and rickety counters, build new fixtures, put in new show windows and rearrange the store. With some misgivings he decided to do it. When the opportunity came he worked night and day with feverish haste in order to get the job finished and make the first impressions as favorable as possible. He succeeded, but when he saw the old man come up the street and stand with quivering lips and trembling hands staring at the monstrosities of paint and varnish and plate glass that had replaced the homely scenes he knew so well, he felt that he could never forgive himself.

But the old man was not a fool. Of course, he did not feel at home at first, but as the days went by and he heard the favorable comments of old customers and friends and business neighbors, and as trade began to pick up, and he came to see how

**A New Light.** convenient and desirable it was to have the Carpenters' Tools out in front near the light, instead of back in a dingy corner, and how much easier it was to sell Pocket Knives from a show case instead of a drawer behind the counter, he slowly grew to like the change and enter into the new spirit which pervaded the store. He took more pains with his dress, increased his affability to customers and himself suggested one or two further improvements which were installed forthwith.

One Saturday night in November, after they had had an exceptionally busy day, he stayed down later than usual and watched the young man finish the last things around the desk and safe. There was something on his mind. "Harry," he said, "it goes against the grain, but I'll confess that you didn't make any mistake when you overhauled the old store. If you'd been born in my time you'd have felt the same as I did, but at last I'm satisfied that your way of selling Hardware is the best. Last year I shut down on that Christmas scheme of yours, but this year I'll have nothing to say. Just go ahead as you think best, and if you want to spend a hundred or so advertising I guess we can stand it."

#### Taking the Bull by the Horns.

#### Gets It Off His Mind.



## The Trades 100 Years Ago.

### Seventh Article.

The following article with the accompanying illustration is taken from the "Book of Trades, or Library of the Useful Arts," which was published in 1807 by Jacob Johnson, London, and at that time for sale in his book-stores in Philadelphia and Richmond, Va.

### The Shipwright.

A ship has been defined a timber building, consisting of various parts and pieces, nailed and pinned together with iron and wood, in such form as to be fit to float and to be conducted by wind and sails from sea to sea.

The word ship is a general name for all large vessels with sails adapted for navigation on the sea, but by sailors the term is more particularly applied to a vessel furnished with three masts, each of which is composed of a lower mast, a topmast and a topgallant mast.

A shipwright is one who is employed in building or repairing such vessels. Shipbuilding is to this country one of the most important arts; it is studied as a science by the



*Shipwrights*

learned, who dominate it naval architecture; for the promotion of this science a very respectable body of ingenious men have for the last fifteen years associated.

In shipbuilding three things are necessary to be considered: First, to give the vessel such a form as shall be best adapted for sailing and for the service for which she is designed; secondly, to unite the several parts into a compact frame, and thirdly, to provide suitable accommodations for the officers and crew, as well as for the cargo, furniture, provisions, guns and ammunition.

The outside figure of a ship includes the bottom, or the hold, which is the part that is under the water when the vessel is laden; and the upper works are called the dead works, which are usually above the water when the ship is laden.

To give a proper shape to the bottom of

the ship it is necessary to consider the service for which she is designed. A ship of war should be able to sail swiftly and carry her lower tier of guns four or five feet out of the water. A merchant ship ought to be able to contain a large cargo of goods and to be navigated with few hands, and both should be able to carry sail firmly, to steer well and to sustain the shocks of the sea without being violently strained.

Ships are built principally with oak timber, which is the stoutest and strongest wood we have, and, therefore, the best fitted both to keep sound under water and to bear the blows and shocks of the waves and the terrible strokes of cannon balls. For this last purpose it is a peculiar excellence of the oak that it is not so liable to splinter or shiver as other wood, so that a ball can pass through it without making a large hole. The great use of the oak for the structure of merchant ships, as well as for men of war, is referred to by Mr. Pope:

While by our oaks the precious loads are borne,  
And realms commanded which those trees adorn.

During the construction of a ship she is supported in the dock or upon a wharf by a number of solid blocks of timber placed at equal distances from and parallel to each other, in which situation she is said to be on the stocks.

The first piece of timber laid upon the blocks is generally the keel, which at one end is let into the sternpost and at the other into the stem. If the carcase of a ship be compared to the skeleton of a human body the keel may be considered as the backbone and the timbers as the ribs.

The stern is the hinder part of the ship, near which are the staterooms, cabins, &c. To the sternpost is fixed the ironwork that holds the rudder, which directs the course of the vessel.

The stem is a circular piece of timber in the front; into this the sides of the ship are inserted. The outside of the stem is usually marked with a scale or division of feet, according to its perpendicular height from the keel. The intention of this is to ascertain the draught of water at the forepart when the ship is in preparation for a sea voyage.

In the plate the shipwright is represented standing at the stern on a scaffold and driving in the wedges with his wooden trunnel. The holes are first bored with the auger and then the wedges driven in; these are afterward cut off with a saw. At his feet lie his saw, his auger, which is used for boring large holes; his axe and punches of different sizes.

The calking of a ship is a very important operation. It consists in driving oakum or the substance of old ropes untwisted and pulled into loose hemp, into the seams of the planks to prevent the ship's leaking. It is afterward covered with hot melted pitch or rosin to prevent its rotting.

A mixture used for covering the bottom of ships is made of one part of tallow, one of brimstone and three parts of rosin; this is called paying the bottom. The sides are usually payed with tar, turpentine or rosin.

To enable ships to sail well the outsides in contact with the water are frequently covered with copper.

The masts of ships are made of fir or pine on account of the straightness and lightness of that wood. The length of the mainmast of an East India ship is about eighty feet. The masts always bear a certain proportion to the breadth of the ship. Whatever the breadth of the ship be multiply that breadth by twelve and divide the product by five, which gives the length of the mainmast. Thus, a ship which measures thirty feet at the broadest part will have a mainmast seventy-two feet long. The thickness of the mast is estimated by allowing one inch for every three feet in length; accordingly, a mast seventy-two feet long must be twenty-four inches thick. For the other masts different proportions are to be used. To the masts are attached the yards, sails and rigging, which receive the wind necessary for navigation.

In the dock yard where ships are built six or eight men called quartermen are frequently intrusted to build a ship, and engage to perform the business for a certain sum under the inspection of a master builder. These employ other men under them, who, according to their different departments, will earn from fifteen or twenty shillings to two or three pounds per week.

When a ship is finished building it is to be launched—that is, put out of dock. To render the operation of launching easy the ship when first built is supported by two strong platforms laid with a gradual inclination to the water. Upon the surface of this declivity are placed two corresponding ranges of planks, which compose the base of the frame, called the cradle, to which the ship's bottom is securely attached. The planes of the cradle and platform are well greased, and then the blocks and wedges by which the ship was supported are driven out from under the keel. Afterward the shores by which she is retained on the stocks are cut away and the ship slides down to the water.

Ships of the first rate are usually constructed in dry docks and afterward floated out by throwing open the floodgates and suffering the tide to enter as soon as they are finished.

THE LOWELL SCALE COMPANY, Lowell, Mass., is moving its plant to Brattleboro, Vt., where it has purchased the premises known as the Williams factory. The company expects to be settled in its new quarters by October 1. The plant, of up to date construction, consists of a three-story building, 40 x 100 ft., with an L 30 x 30 ft., two stories high. Plenty of open land surrounds the factory, affording room for future extensions when necessary. The company, established at Lowell in 1890, makes a specialty of portable Platform and Union Scales of medium and high grade, and has developed a good trade, both domestic and foreign, which has increased to such an extent as to necessitate the removal to larger quarters as above. Lately the company has been incorporated under Massachusetts laws. Salesrooms and offices have been opened at 100 Pearl street, Boston, Mass.

At a recent meeting of San Francisco Hardware merchants, the San Francisco Retail Hardware Club was formed. The club will give monthly smokers and entertainments, at which business matters will also come up for discussion. In this way it is hoped to make the gatherings instructive and helpful as well as enjoyable. The officers elected for the first year are G. M. Hickman, president; Philip J. Eiseman, vice-president, and Geo. L. Everett, secretary, 42 Market street, San Francisco.

## AN ATTRACTIVE CARVER CASE.

THE glass counter showcase for accommodating a stock of Carvers here shown is the property of the John E. Bassett & Company, New Haven, Conn. It was made to the firm's order, and its advantage lies in the fact that the contents of the case are not only very accessible, but are most effectively shown, enabling a customer to view the entire line at once. The large box sets in the bottom of the case rest flat on the floor. Above is a skeleton shelf tilted at an angle of perhaps 15 degrees, on which smaller sets in boxes are displayed, while



*An Attractive Carver Case.*

above that, forming a third tier, is another skeleton shelf tilted at an angle of about 45 degrees, on which the more common styles of Knives and Forks are shown unboxed. Having the lower tier of samples flat and the others tilted at different angles, as described, makes the arrangement such that neither tier seriously interferes with seeing the one below it, especially as there are no boxes on the upper shelf to make a solid background. Brilliant light is obtained as desired from incandescent reflectors, shaded in front, one of which will be seen in the illustration. The case is a large one, only a small portion being shown in the cut, and makes one of the most effective Carver displays to be found in retail establishments.

ALBERT HAVELOCK CAMPBELL, vice-president of A. C. Leslie & Co., Ltd., Montreal, Quebec, died on the 27th ult., aged 40 years. Mr. Campbell had been identified with the Hardware and Iron trade since boyhood, and became associated with A. C. Leslie & Co., in January, 1897.

THE annual fall outing and stockholders' meeting of the New England Iron and Hardware Association will be held at the Tedesco Club, Swampscott, Mass., Tuesday, September 17. A golf tournament in charge of H. L. Doten will be played in the afternoon and dinner will be served at 6 p. m.



## Hardware Store Advertising.

### CATCHING THE PUBLIC EYE.

BY CLARFIELD.

SOME merchants seem to think that the end and aim of all advertising is the catching of the public eye. Might as well say that the end and aim of life is to live. Stop and think a moment of those lives that are lived in that way. To the real life the matter of living is only an incidental. It is what we make of life that counts.

#### Important but Not Imperative.

It is important to the success of advertising that something should be done to catch the attention of readers, but it is not absolutely imperative. In proof of this think of any one of a number of great advertising successes that have been won by the use of carefully written, persuasive and logical copy, without cuts or display of any striking nature. Granted that they might have done better with the use of well chosen catch lines or illustrations, but still the fact stands boldly out that they have made signal successes without the use of display, and it is this fact that ought to be driven strongly home to the merchant who still insists that the compositor shall make up his advertisements entirely with display type. Unfortunately for the advertising profession, the papers and for the merchants themselves, there are still numerous men of this class.

#### Over-Display Is Ruinous.

Yes, ruinous! It ruins the appearance of an advertisement and thereby defeats the very aim that the display crank is striving for. It is even more far reaching in its bad results. It injures the typographical appearance of the paper in which it appears, and nine times out of ten will be weak in result bringing qualities, and thus turn the advertiser's thoughts into pessimistic channels upon the whole subject of advertising.

#### Local Papers Can Lend Aid.

Local papers are largely responsible for such cases where they exist. The local writers and editors can lend great aid to their advertisers in this direction if they will. Most of them will gladly do so, and it is strictly up to the advertiser himself to take advantage of such helps to promote the interests of his business. It often pays to go into the composing room and have a heart to heart talk with the foreman or compositors. These men are frequently students of the advertising and printing journals, and are more than anxious to make their reading turn to some practical good.

#### One or Two Series of Type.

One series of type intelligently handled will always make a more effective advertisement than several worked up together. This is especially true of small announcements. Even in very large advertisements, it is seldom advisable to use more than three different faces. This isn't theory. It is established fact!

#### The Use of Special Borders.

Special borders are good and not expensive. The item of expense is mentioned because the local publisher doing a somewhat limited business cannot afford to buy a different border for each of his advertisers. The advertiser himself can buy it for a nominal outlay, but he should first take the advice of the "man who knows." Let the advertiser go over to the publishing office and together with the foreman or manager pick out the kind of border that will work to best advantage with the type and space he is using. Every up-to-date printing office has several good type catalogues for this purpose. The larger publishers are very liberal in this direction, often buying complete type and border outfits for each large advertiser.

The plan can be carried to the type style as well if the advertiser chooses to do so, and usually the bill will be well within reasonable bounds considering the advantage gained. The advertiser who controls a type style which is held exclusively for his use has gained a strong point in "catching the public eye."

#### Use Relevant Headlines.

Use headlines that have direct relation to the business or the text of the advertisement. Wild, splurgy, irrelevant headings may "catch the eye," but they don't hold attention. They don't convince. Now sit down and be honest with yourself! Are you putting things into your announcements that will react in a similar way upon your business? Are you allowing your advertisements to be "thrown together" in any sort of a passive way that doesn't mean much to anybody, or are you getting into them some of that energy, go and attractiveness that is making your store popular and successful in other directions?

#### REQUESTS FOR CATALOGUES, Etc.

*The trade is given an opportunity in this column to request from manufacturers price-lists, catalogues, quotations, &c., relating to general lines of goods.*

**REQUESTS for catalogues, price-lists, quotations, &c., have been received from the following houses, with whom manufacturers may desire to communicate:**

FROM AURORA HARDWARE & FURNITURE COMPANY, Aurora, Minn., which has moved its stock of Hardware, Stoves, Tinware, Paints, Plumbing, Supplies, Sporting Goods, &c., into a new and finely equipped store.

FROM HYDORN & BENTSON, Cream, Minn., who have embarked in the Hardware, Stove, Tinware, Implement, Paint and Sporting Goods business.

FROM MCGEE-ROSS HARDWARE COMPANY, which has been incorporated in Jackson, Tenn., to conduct a wholesale and retail business. The concern has bought out the retail business of Rauscher Hardware Company which it will take care of in addition to its development along jobbing lines.

FROM ANDERSON & SON, Rosalie, Wash., who have succeeded D. F. Anderson & Sons in the retail Hardware business.

FROM JOHN N. LINDSLEY, Orange, N. J., who is about to add to his Hardware stock a line of Fishing Tackle, Ammunition, Guns, Sporting Goods, &c., and will be glad to receive catalogues and quotations relating thereto.

FROM THE PRESCOTT-WILLIAMS COMPANY, Spencer, Mass., whose Hardware store was damaged by fire a short time since. The company also gives attention to plumbing, steam and hot water heating, &c.

FROM THE ROSS COMPANY, Portland, Ore., handling Shelf Hardware, Paints and Oils, Sporting Goods and Plumbing Supplies, which has lately been incorporated.

#### PAINT CATECHISM FOR PAINT MEN.

IN connection with its interesting and suggestive September letter to handlers of Paint the Bureau of Promotion and Development of the Paint Manufacturers' Association of the United States, Chicago, is sending out a valuable booklet, entitled "A Paint Catechism for Paint Men," compiled by G. B. Heckel, editor of *Drugs, Oils and Paints*. It comprises terse practical definitions of paint materials, and answers to questions met in the sale and use of Paints. The author remarks that it has seemed desirable that sellers of Paint should have available in compact and convenient form, the technical knowledge of their specialty which has been accumulating during the past half century, and the catechism is submitted as a compendium of such information gathered from many sources and condensed for quick reference. Eighty-eight questions, some of them comparatively simple, and others of a more complex nature, are answered in a plain, straightforward and practical way. The bureau will be pleased to forward a copy of the booklet to any one interested on application.

George Howard's  
Hardware Store.

GEORGE HOWARD, who has been engaged in the Hardware, plumbing and sheet metal business in Mount Vernon, N. Y., for 40 years, has recently completed the enlargement and rearrangement of his store building.

First Floor Plan.

In Fig. 1 the arrangement of the first floor is shown, which is practically divided into two parts by blocks of shelving, extending part way to the ceiling. This arrangement provides for a general division of the stock—Hardware and kitchen goods being on the right hand side, upon entering the store, and plumbing goods on the left.

Location of Shops.

The new side of the building is the left-hand half, which is 80 ft. deep, while the old portion is 120 ft. deep. In addition to the main part of the building, in the rear and connected with it, is a structure 32 x 37 ft. in size, two stories high, devoted to shops, &c. The plumbing shop is in the basement, the cornice shop and room for

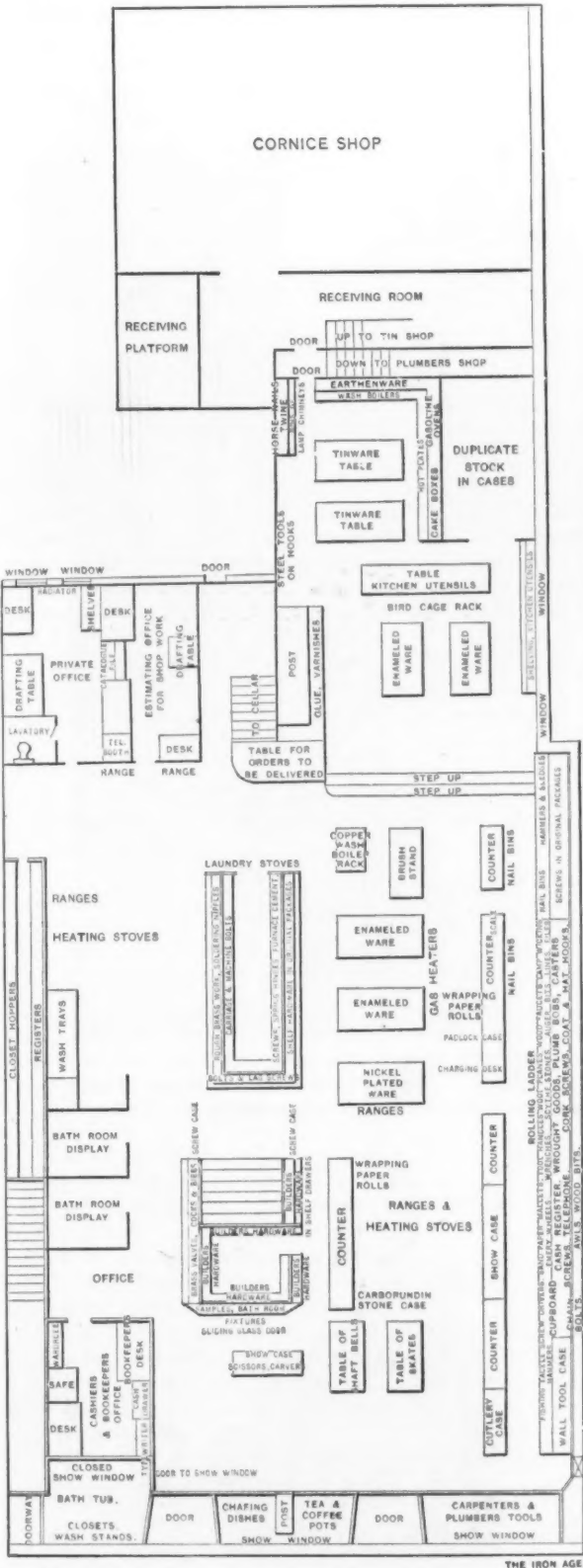


Fig. 1.—Floor Plan of George Howard's Hardware Establishment.

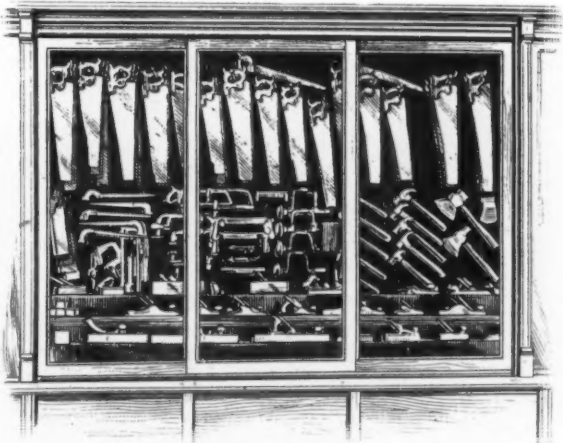


Fig. 2.—Wall Tool Case.

receiving goods is on the first floor and the tin shop on the second floor. The plumbing and tin shops are accessible from the first floor by stairways. A hand elevator, 5 x 6 ft. in size, runs from the basement to the second floor. The outside platform for the receipt of goods and for loading goods to be delivered by wagon, is on a level with the receiving room. During the busy fall season 22 plumbers, with helpers and six to seven tinner are employed, and these, with the salesmen, aggregate about 50 persons on the payroll.

Show Windows.

The show windows extend across the entire front of the store, those at the right and center are open at the

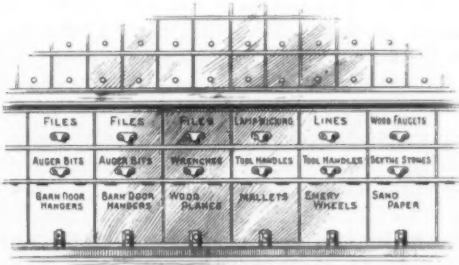


Fig. 3.—Hardware Shelving, Drawers and Cupboards.

It required about a year to make the alterations and to get everything in running shape, as business was carried on while the work was being done. This included widening the store from 25 to 50 ft., building a new front, making the entire structure three stories high and raising the ceiling of the old part of the first floor. The first floor and cellar are used for store purposes, while the second and third stories are rented.



### Tool Case and Shelving.

The wall Tool Case, on the right hand, is at the end of the shelving, nearest the show windows, shown in Fig. 2, and is lined with red burlap. The Saws are suspended from  $\frac{1}{2}$  in. Galvanized Iron Pins, driven into the back of the case. Hammers are hung on Japanned Hooks, while Braces, Drawing Knives, Hack and Butcher Saws are hung on Cornice Hooks. At the bottom of the case are three steps or shelves, upon which Planes are sampled. The shelving containing drawers and cupboards along the right hand wall was in use in the former store. In Fig. 3 the general arrangement is illustrated. The drawers above the ledge accommodate a general line of Shelf Hardware. The larger drawers, under the ledge, contain more bulky goods, as indicated in Figs. 1 and 3. Below these drawers are cupboards, hinged at the top and kept

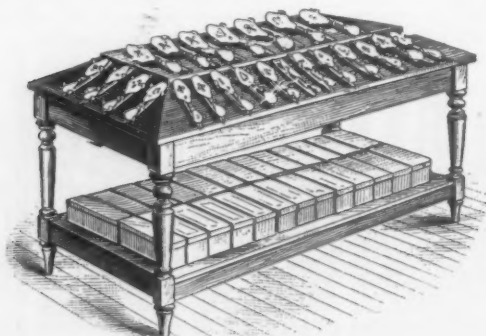


Fig. 4.—Show Table.

closed by cupboard catches at the bottom. Thus dust and dirt are excluded from the goods. Further down the shelving, under the ledge, are bins for Heavy Hammers and Sledges, &c. Drawers under the counters, opening in the aisle, are for bulky goods, including Braces, Screw Drivers, Handled Hammers, Fishing Tackle, &c. The woodwork throughout the store is natural finish, varnished.

### Show Tables.

Across the aisle, in front of the wall and Cutlery cases, Fig. 1, are two show tables, one of which is shown in Fig. 4, used to display season goods. The tables have beveled tops, covered with red canton flannel. The shelves underneath are utilized for holding duplicate stock. The tables are 3 ft. wide, 6 ft. long and 3 ft. high to the lower edge of the beveled top. The bevel is  $7\frac{1}{2}$  in. high, and the top of the bevel is 13 in. wide. The tables being at the front of the store call customers' attention to the goods which are thus displayed to good advantage.

(To be continued.)

JOHN S. LENG'S SON & CO., 33 Murray street, New York, jobbers of Bicycles, Tires and Sundries, have been extending their lines of merchandise to include a number of articles in active demand during the fall and winter season which they can handle to advantage. Columbia Graphophones and Records were added some time ago, and more recently they have taken on the line of Single and Double Barrel Shot Guns made by the Union Fire Arms Company, Toledo, with Ammunition. They also carry a line of Hand Cars and Toy Automobiles made by the Gendron Iron Wheel Company, Toledo, and a line of High Grade Sweaters manufactured for them and sold under their special brand. The firm finds the amount of its business nearly doubled by the introduction of these and other lines not usually sold by Bicycle jobbers.

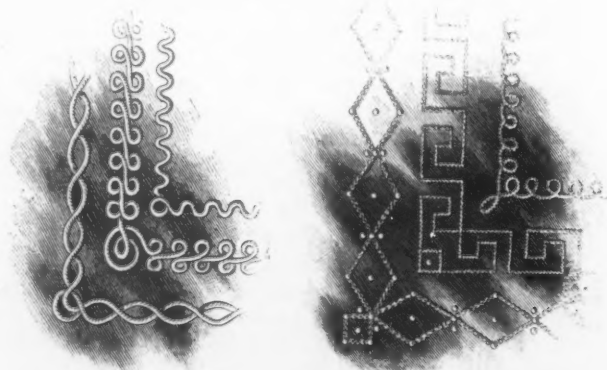
CAVERHILL, LEARMONT & CO., Montreal, Quebec, announce that the fire which occurred on the top flat of their warehouse on the 23d ult. was confined to this floor, and was quickly extinguished. The business of the concern was not interrupted and orders have been given prompt attention.

## Hardware Window Display

Twenty-third Article.

### BORDERS.

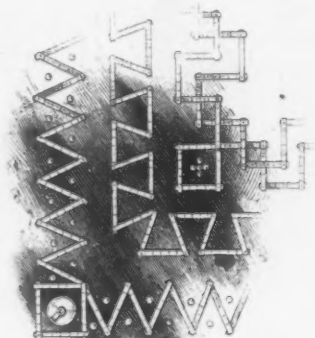
Many window displays are much embellished by the use of some sort of border, either around the entire layout



Suggestions for Rope Borders.

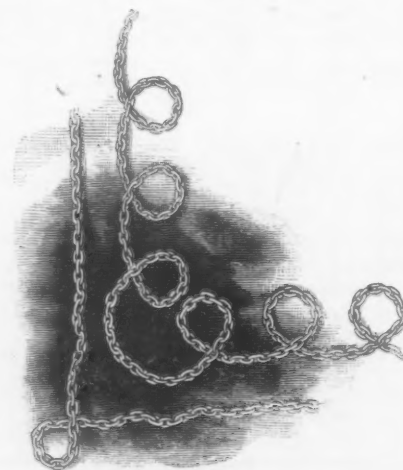
Border Designs in Small Chain.

or at least across the front of the window. A Hardware store affords at least three excellent materials for making such a border—namely, Rope, Chain and Zig Zag Rules. The Rules should, of course, be open, and may be arranged in various figures as suggested in the illustration. Rope and Chain are



Borders Framed with Zigzag Rules.

capable of very artistic arrangement. They may be laid out straight or in curves with a corner design, looped, or formed in diamonds, &c., as suggested in the illustrations.



Heavy Chain Borders.

### Rope and Chain.

In making diamonds and similar designs two lengths of Chain or Rope are of course necessary, crossing and recrossing each other to complete the figure. Two groups of Chain borders are shown, one utilizing small and the other

heavy Chain. An effective setting for a fancy display may be made by covering the floor of the window with bunting or other material of any desired color, puffed, with a border of Rope or Chain such as has been described.

## HARDWARE FROM A TO Z.

WITH the declaration that it can supply Hardware from A to Z, the Weaver Hardware Company, 31-35 Main street, East, Rochester, N. Y., sends out a leaflet in which partial evidence of this fact is gracefully given by the company's rhymist, as follows:

A is for Axe, to chop down big trees.  
B is for Bit, that bores holes with ease.  
C is for Chisel and Cutlery keen.  
D is for Drills, for both hand and machine.  
E is for Emery and for Edge tools, too;  
F is for Freezers; you know what they do.



*Mechanics' Tools Window Exhibit of Warner Hardware Company.*

G is for Garden Tools, all in a row;  
H is for Hammer, and Harrow and Hoe.  
I is for Irons, they're both "flat" and "sad"  
J is for Jackknives, which make the boys glad.  
K is for Key and for carpenter's Kits.  
L is for Lock into which the key fits.  
M is for Mower which keeps the grass cut;  
N is for Novelties, Nails, Netting and Nut.  
O is for Oilers, Oil Stoves and Oil Can.  
P is for Pail, Plow, Pump, Pulley and Pan.  
Q is for Quoits, one of the old sports;  
R is for Razors and Rakes of all sorts.  
S is for Screws, Scales, Shears, Shovels & Saws.  
T is for Tinware, Tools, Trimmings, Tack-claws.  
U is for Useful Utensils—we've more than a score in this big Hardware Store.  
V is for Vise, for a carpenter's bench  
W is for Washer, and Wringer and Wrench.  
X is the letter that stands for unknown; if you don't know your wants, come here and be shown.  
Y is for Yard-stick, that measures three feet.  
Z is for Zinc, still our tale's incomplete.

J. S. Colgate has purchased the Hardware, Stove, Paint and Sporting Goods business of L. S. Todd, Bradley, S. D., and continues at the old stand.

## MECHANICS' TOOLS WINDOW EXHIBIT.

THE WARNER HARDWARE COMPANY, Minneapolis, Minn., whose large establishment is located at 13-17 South Sixth street, appreciates the advertising value of its show window, and is making intelligent and painstaking effort to convert it into one of its most effective means of attracting business to the store. A recent window exhibit, devoted very largely to Starrett's Tools, is reproduced herewith, as an example of what the company is doing in this direction. The window has a 14-ft. frontage of glass, with a paneled ceiling which is studded with 26 16 candle-power electric lights, providing ample illumination at night. The interior is all finished in birch, stained to a mahogany finish, and rubbed to an eggshell gloss. The window itself is thus an attractive one, and with the exercise of skill and taste in displaying goods in it the public eye is caught and favorably impressed. The handsome display illustrated herewith, we are advised, occasioned a great deal of comment on the part of the company's patrons, and sold

many of the goods featured as well as increasing general sales. The name Warner, which occupied a conspicuous place on the floor of window near front, was made up of Calipers and Steel Rules.

We also reproduce herewith a gummed label which the Warner Hardware Company uses freely in its relations with customers. These labels are given a place

|    |  |
|----|--|
| IF | anything should occur in our handling of your business that is not entirely satisfactory to you <b>LET US KNOW</b> at once. Our customers <b>MUST</b> be pleased for we cannot afford to have a dissatisfied customer and want if, within reason, we can prevent it. |
|    | <b>WARNER HARDWARE COMPANY,</b>  |
|    | <b>13-17 SO. 6th ST. MINNEAPOLIS.</b>  |

*An Effective Label.*

on correspondence, bills, packages, &c., and are an evidence of the enterprise and care with which the business is prosecuted. This conscientious effort to insure satisfaction on the part of customers is doubtless appreciated by those who have dealings with the store and is a good advertisement for it. Where assurance of this sort is given it is quite likely that dissatisfied customers are few and far between.



### Tool Case and Shelving.

The wall Tool Case, on the right hand, is at the end of the shelving, nearest the show windows, shown in Fig. 2, and is lined with red burlap. The Saws are suspended from  $\frac{1}{2}$  in. Galvanized Iron Pins, driven into the back of the case. Hammers are hung on Japanned Hooks, while Braces, Drawing Knives, Hack and Butcher Saws are hung on Cornice Hooks. At the bottom of the case are three steps or shelves, upon which Planes are sampled. The shelving containing drawers and cupboards along the right hand wall was in use in the former store. In Fig. 3 the general arrangement is illustrated. The drawers above the ledge accommodate a general line of Shelf Hardware. The larger drawers, under the ledge, contain more bulky goods, as indicated in Figs. 1 and 3. Below these drawers are cupboards, hinged at the top and kept

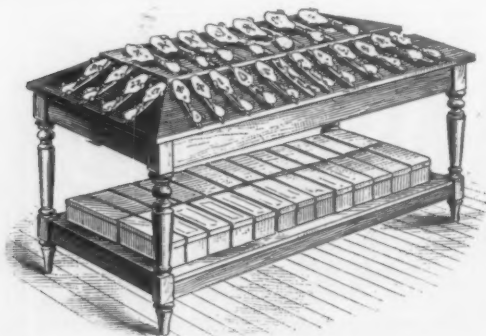


Fig. 4.—Show Table.

closed by cupboard catches at the bottom. Thus dust and dirt are excluded from the goods. Further down the shelving, under the ledge, are bins for Heavy Hammers and Sledges, &c. Drawers under the counters, opening in the aisle, are for bulky goods, including Braces, Screw Drivers, Handled Hammers, Fishing Tackle, &c. The woodwork throughout the store is natural finish, varnished.

### Show Tables.

Across the aisle, in front of the wall and Cutlery cases, Fig. 1, are two show tables, one of which is shown in Fig. 4, used to display season goods. The tables have beveled tops, covered with red canton flannel. The shelves underneath are utilized for holding duplicate stock. The tables are 3 ft. wide, 6 ft. long and 3 ft. high to the lower edge of the beveled top. The bevel is  $7\frac{1}{2}$  in. high, and the top of the bevel is 13 in. wide. The tables being at the front of the store call customers' attention to the goods which are thus displayed to good advantage.

(To be continued.)

JOHN S. LENG'S SON & Co., 33 Murray street, New York, jobbers of Bicycles, Tires and Sundries, have been extending their lines of merchandise to include a number of articles in active demand during the fall and winter season which they can handle to advantage. Columbia Graphophones and Records were added some time ago, and more recently they have taken on the line of Single and Double Barrel Shot Guns made by the Union Fire Arms Company, Toledo, with Ammunition. They also carry a line of Hand Cars and Toy Automobiles made by the Gendron Iron Wheel Company, Toledo, and a line of High Grade Sweaters manufactured for them and sold under their special brand. The firm finds the amount of its business nearly doubled by the introduction of these and other lines not usually sold by Bicycle jobbers.

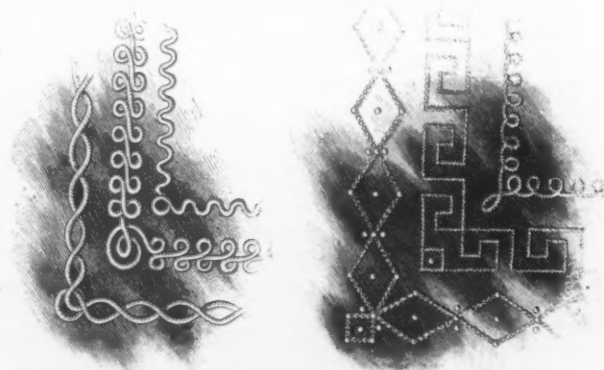
CAVERHILL, LEARMONT & Co., Montreal, Quebec, announce that the fire which occurred on the top flat of their warehouse on the 23d ult. was confined to this floor, and was quickly extinguished. The business of the concern was not interrupted and orders have been given prompt attention.

## Hardware Window Display

Twenty-third Article.

### BORDERS.

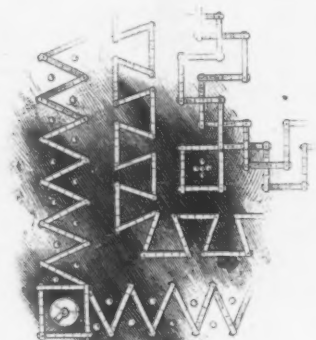
Many window displays are much embellished by the use of some sort of border, either around the entire layout



Suggestions for Rope Borders.

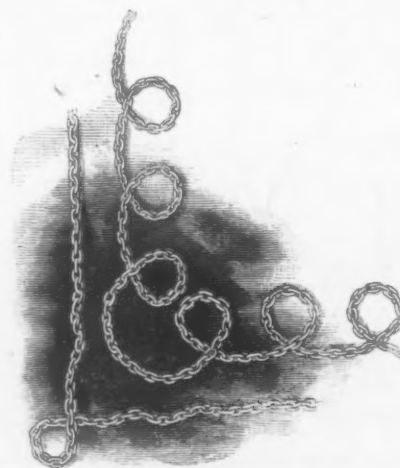
Border Designs in Small Chain.

or at least across the front of the window. A Hardware store affords at least three excellent materials for making such a border—namely, Rope, Chain and Zig Zag Rules. The Rules should, of course, be open, and may be arranged in various figures as suggested in the illustration. Rope and Chain are



Borders Framed with Zigzag Rules.

capable of very artistic arrangement. They may be laid out straight or in curves with a corner design, looped, or formed in diamonds, &c., as suggested in the illustrations.



Heavy Chain Borders.

### Rope and Chain.

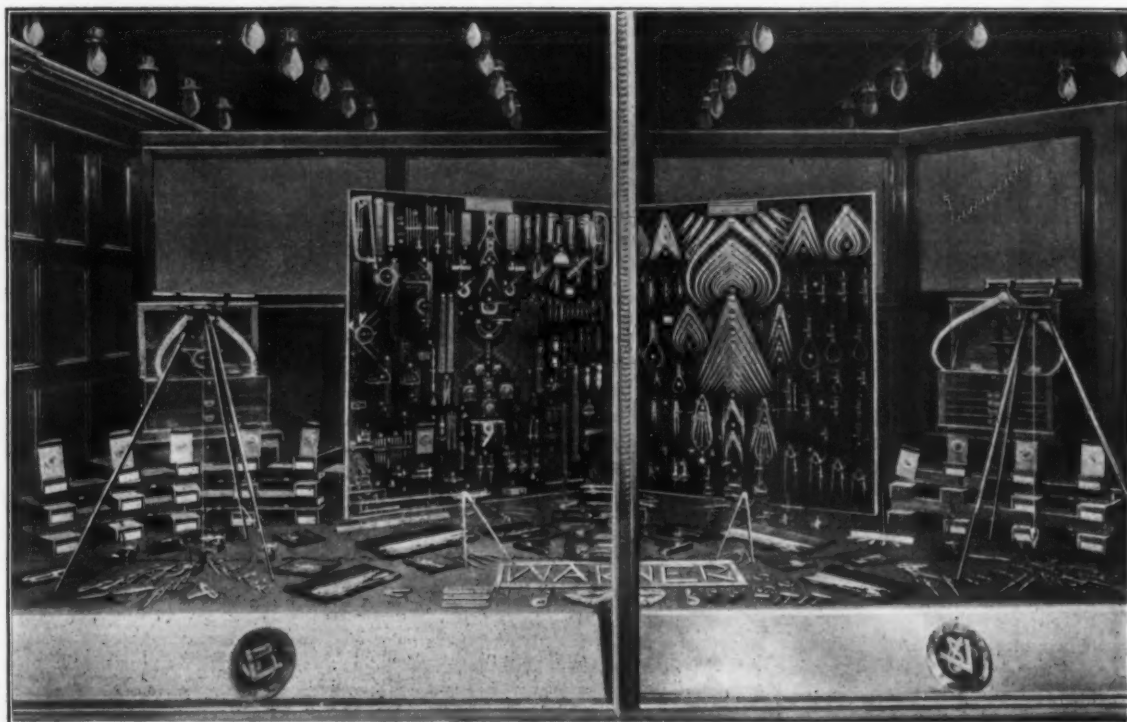
In making diamonds and similar designs two lengths of Chain or Rope are of course necessary, crossing and recrossing each other to complete the figure. Two groups of Chain borders are shown, one utilizing small and the other

heavy Chain. An effective setting for a fancy display may be made by covering the floor of the window with bunting or other material of any desired color, puffed, with a border of Rope or Chain such as has been described.

## HARDWARE FROM A TO Z.

WITH the declaration that it can supply Hardware from A to Z, the Weaver Hardware Company, 31-35 Main street, East, Rochester, N. Y., sends out a leaflet in which partial evidence of this fact is gracefully given by the company's rhymist, as follows:

A is for Axe, to chop down big trees.  
B is for Bit, that bores holes with ease.  
C is for Chisel and Cutlery keen.  
D is for Drills, for both hand and machine.  
E is for Emery and for Edge tools, too;  
F is for Freezers; you know what they do.



*Mechanics' Tools Window Exhibit of Warner Hardware Company.*

G is for Garden Tools, all in a row;  
H is for Hammer, and Harrow and Hoe.  
I is for Irons, they're both "flat" and "sad"  
J is for Jackknives, which make the boys glad.  
K is for Key and for carpenter's Kits.  
L is for Lock into which the key fits.  
M is for Mower which keeps the grass cut;  
N is for Novelties, Nails, Netting and Nut.  
O is for Oilers, Oil Stoves and Oil Can.  
P is for Pail, Plow, Pump, Pulley and Pan.  
Q is for Quoits, one of the old sports;  
R is for Razors and Rakes of all sorts.  
S is for Screws, Scales, Shears, Shovels & Saws.  
T is for Tinware, Tools, Trimmings, Tack-claws.  
U is for Useful Utensils—we've more than a score in this big Hardware Store.  
V is for Vise, for a carpenter's bench  
W is for Washer, and Wringer and Wrench.  
X is the letter that stands for unknown; if you don't know your wants, come here and be shown.  
Y is for Yard-stick, that measures three feet.  
Z is for Zinc, still our tale's incomplete.

J. S. Colgate has purchased the Hardware, Stove, Paint and Sporting Goods business of L. S. Todd, Bradley, S. D., and continues at the old stand.

## MECHANICS' TOOLS WINDOW EXHIBIT.

THE WARNER HARDWARE COMPANY, Minneapolis, Minn., whose large establishment is located at 13-17 South Sixth street, appreciates the advertising value of its show window, and is making intelligent and painstaking effort to convert it into one of its most effective means of attracting business to the store. A recent window exhibit, devoted very largely to Starrett's Tools, is reproduced herewith, as an example of what the company is doing in this direction. The window has a 14-ft. frontage of glass, with a paneled ceiling which is studded with 26 16 candle-power electric lights, providing ample illumination at night. The interior is all finished in birch, stained to a mahogany finish, and rubbed to an eggshell gloss. The window itself is thus an attractive one, and with the exercise of skill and taste in displaying goods in it the public eye is caught and favorably impressed. The handsome display illustrated herewith, we are advised, occasioned a great deal of comment on the part of the company's patrons, and sold

many of the goods featured as well as increasing general sales. The name Warner, which occupied a conspicuous place on the floor of window near front, was made up of Callipers and Steel Rules.

We also reproduce herewith a gummed label which the Warner Hardware Company uses freely in its relations with customers. These labels are given a place

|    |  |
|----|--|
| IF | anything should occur in our handling of your business that is not entirely satisfactory to you <b>LET US KNOW</b> at once. Our customers <b>MUST</b> be pleased for we cannot afford to have a dissatisfied customer and wont if, within reason, we can prevent it. |
|    | <b>WARNER HARDWARE COMPANY,</b>  |
|    | 13-15-17 SO. 6th ST. MINNEAPOLIS.  |

*An Effective Label.*

on correspondence, bills, packages, &c., and are an evidence of the enterprise and care with which the business is prosecuted. This conscientious effort to insure satisfaction on the part of customers is doubtless appreciated by those who have dealings with the store and is a good advertisement for it. Where assurance of this sort is given it is quite likely that dissatisfied customers are few and far between.



## AUSTRALIAN NOTES.

MELBOURNE, August 5, 1907.

THE Hardware business taken as a whole is fairly satisfactory. Goods of all kinds are in general demand, and bills are being met promptly. The seasons continue good. The Australian wheat crop for 1906-1907 amounted to 69,000,000 bushels, of which about 29,000,000 bushels were held for local consumption, the balance of 40,000,000 being exported. The gold production for 1906 was very close to £17,000,000 sterling, say, \$85,000,000, showing a slight decrease in comparison with 1905. Hardware houses, both wholesale and retail, express themselves pleased with the year's trading so far.

The advent of the Australian spring time, now close at hand, will give an added impetus to trade. The leading agricultural societies hold their annual meetings about this season of the year, and the visits of the farmers and their families to their adjacent centers of population always means extra business for the hardworking Hardwareman.

The various Governments are becoming alive to the necessity of opening up the lands in this sparsely populated community of ours, and the areas available for cultivation are slowly increasing year by year. It cannot be much more than 15 years ago that a P. & O. officer is alleged to have turned up his nose when receiving the first trial shipment of Australian butter for the English market. Now it is no uncommon thing, so well has dairy farming paid, for several hundred tons to go away in one ship, and shipments are weekly. There is no need to point the relationship between dairy farming and the Hardware trade.

Wire Netting, as previously reported in these columns, is to be manufactured by prison labor in Victoria. Some of the machinery and a quantity of Wire has already been delivered at Penbridge prison, but the factory buildings are not yet erected. Meantime the demand is brisk from all the States. Some 1700 miles, out of 2500 miles, ordered from England is to hand, on behalf of the Lands Department of New South Wales. Truly the rabbit is a good friend to some, although the country's enemy. Countless thousands of miles of Netting will yet be wanted before, if ever, the pest is subdued.

The building trade continues more than good in all the States. Towns and cities are slowly but surely being transformed, and a stranger visiting Melbourne or Sydney to-day after a few years' absence would find scores of handsome buildings erected since his former visit.

## Preferential Trade in New Zealand.

The New Zealand Government has introduced a revised tariff of customs duties. The bill was brought down on July 17. Of course, it is pretty certain that many of the items will be negatived before the passage of the bill by the New Zealand House of Parliament. The new tariff extends the preference granted to the United Kingdom in many lines.

Just here it may be as well to note that for 1906 the trade of New Zealand totaled over £33,000,000 sterling, of which £15,000,000 represented imports and £18,000,000 sterling represented the exports. The total sum collected by the customs was just under £3,000,000 sterling. Of the imports about £600,000 worth were subject to preferential duties.

Until such time as the bill becomes law, it will be useless to give item by item. Meantime, however, the new duties will be collected, and so far as American exports go, the following increases, which will probably be maintained, are worthy of note: Electrical Machinery and Appliances are raised from 10 to 20 per cent. Locomotives, formerly free, will be dutiable at 20 per cent. Hydraulic Cranes, formerly free, are 20 per cent. Cash Registers are raised from 10 to 20 per cent. Cartridges containing shot are raised from 1 shilling 6 pence to 2 shillings 6 pence per 100; Cartridge cases, 1 shilling 6 pence per 100. A 10 per cent. preferential tax in favor of Britain is to go on Feneng Wire and Barbed Wire imported from America and Germany.

The two last named countries have for some time past pretty well held control of the New Zealand market in

these lines. It remains to be seen whether they will be able to maintain it when the British made article has a 10 per cent. advantage against the American and German.

## AMERICAN AXE &amp; TOOL COMPANY'S CATALOGUE.

THE AMERICAN AXE & TOOL COMPANY, Glassport, Pa., has issued a substantial and elaborate loose leaf catalogue containing nearly 300 leaves, richly illustrated in colors referring to Axes, Adzes, Hatchets, Picks and Mattocks, Scythes, Grass Hooks, Corn and Hay Knives, &c. Full details are given regarding packing, dimensions, shipping weight, &c., as well as other information of use to the trade.

## PRICE-LISTS, CIRCULARS, Etc.

*Manufacturers in Hardware and related lines are requested to send us copies of catalogues, price-lists, &c., for our Catalogue Department in New York; and at the same time to call attention to any new goods or additions to their lines, of which appropriate mention will be made, besides the brief reference to the catalogue or price-list in this column.*

J. STEVENS ARMS & TOOL COMPANY, Chicopee Falls, Mass.: Catalogue attractively printed, illustrating and describing the full line of Stevens Double Barrel Hammer and Hammerless Shotguns in various styles and gauges.

READING SADDLE & MFG. COMPANY, Reading, Pa.: Catalogue illustrating Cast Hammers and Hatchets, Sure Shot Ice Pick, Family Tin Shears, Pruning Shears, Gas Pipe Pliers, Carpenters' Pincers, &c.

WHITE MOP WRINGER COMPANY, Fultonville, N. Y.: Catalogue of the White Mop Wringers, illustrating the different styles made and the special features peculiar to these Wringers.

HUDSON PARER COMPANY, Leominster, Mass.: Folder illustrating Hudson's Rocking Table Apple Parer, Little Star Parer, Corer and Slicer and Daisy Parer, Corer and Slicer.

E. D. CLAPP MFG. COMPANY, Auburn, N. Y.: Illustrated catalogue and price-list of Carriage Forgings, embodying standard lists and trade numbers in effect on these lines. The catalogue also refers to Special Forgings for numerous purposes and illustrates a variety which the company is prepared to make.

GLOBE STAMPING COMPANY, Buffalo, N. Y.: Catalogue illustrating and describing Nestable Dinner Palls and Folding Lunch Boxes.

UNION MFG. COMPANY, New Britain, Conn.: Illustrated catalogue and price-list of Lathe, Drill and Planer Chucks.

STUDEBAKER BROS. MFG. COMPANY, South Bend, Ind.: Studebaker Farmers' Almanac for 1908.

BILLINGS & SPENCER COMPANY, Hartford, Conn.: Illustrated pocket size catalogue of Wrenches, Pliers, Hammers and other Drop Forged Tools, Fine Tools and Specialties.

L. H. MACE & Co., 111-117 Houston street, New York: Illustrated catalogue of Toys, including Baby Carriages, Children's Vehicles, Velocipedes, Sleds, &c.

STEINFELD BROS., 620 Broadway, New York: Budget of illustrated catalogues, referring respectively to Domestic Togs and Specialties, Wooden Goods, Refrigerators and Curtain Stretchers.

TOWER & LYON COMPANY, 95 Chambers street, New York: Illustrated 32-page booklet of Ticket Punches, including conductors', reservoir, bond and other Punches, in a variety of styles and sizes, together with two pages of special designs of figure to be punched.

Krohn Hardware Company, Whitewater, Wis., has been incorporated with a capital of \$10,000 by G. H. Krohn, F. F. Shoemaker and W. H. Kennerd.

to make such a system work successfully. Its installation must be absolute and a penalty must be provided for its violation, so that every order will go the same way. Occasionally a shipment will be so insignificant that it will seem like a lot of unnecessary trouble and red tape to follow out the system, but if the breaking of the rule is ever winked at some one will certainly take advantage of that fact, as an excuse for his failure to conform to it.



### File for Shipping Sheets.

All shippers need some system of keeping their shipping sheets and bills of lading in regular order. This is required on account of the frequent necessity of referring to them in case of any question regarding shipments or in tracing lost or delayed shipments. The same will apply to merchants who use charging machines and number their charges. In the system of registering employed by the company, as explained above, shipping sheet, bill of lading and invoice all carry the same number, affording a very ready reference. When you have one you have all.

It is much easier to look up numbers than names or dates. The bookkeeper, instead of posting on the ledger "To Mdse.," just enters the number of the invoice. Then



Fig. 3.—Pasteboard Box Used as File for Shipping Sheets.

If it is necessary to look up anything, this number may be learned at a glance and will take one not only to the invoice but right back to the shipping sheet, to which recourse is always necessary before anything definite is known.

### The Need of a Convenient File

for these sheets and bills of lading is readily apparent. Many use one of the common filing devices with two wire posts or else arrange the sheets in order and run a string through them. Neither of these methods is entirely satisfactory, however, for when filing numerically or alphabetically there are always some sheets which must be held out for some purpose and cannot go in at the time the file is made up, after which it is a slow and annoying job to insert them in the proper place.

### Device Evolved by Necessity.

The company used this system for a long time, but never saw the time when its clerks would keep their filing up to the minute, for they disliked the job and would keep putting it off till they had more time. The company, however, wanted its filing kept up and had a strong pasteboard box, Fig. 3, muslin bound, made deep enough to file away 1000 sheets, either shipping sheets or bills

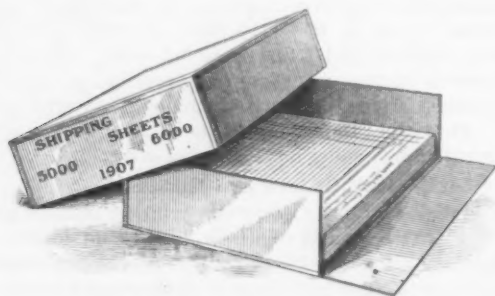


Fig. 4.—Box File Open.

of lading. The top of the box is full telescope; that is, the top completely covers the bottom, which adds to its strength and at the same time makes it stand solid on the shelf. This also affords a smooth space to label on.

One side of the box is made so it will drop when the top is lifted, as shown in Fig. 4. The papers are filed so the numbers on the sheets come next to the drop side, thus enabling one to run over the papers with the fingers very readily. In case a sheet is to be put in or taken out it can be done instantly, and since it is no trouble there is no excuse for clerks not putting sheets back instantly where they belong, thereby keeping them filed right up to the last paper. When a box is full it is ready to go to the archives, thus saving any transferring.

### Excellent Results.

By this plan the company keeps its papers in first-class shape, and its stationery room, where all records are filed away, presents an orderly appearance. It is possible to go directly and get the required paper without handling a hundred that are not wanted. Another important feature is that the customer who registers a complaint on any shipment gets prompt attention, for it is no trouble at all to find his papers.

### Applied to Dead Ledger Leaves.

It may be added that the company is now using these boxes, made better and covered neater, as filing cases for dead leaves taken from its loose leaf ledgers. The casual reader of this article might register this complaint at once, that papers filed loosely like this are very apt to get lost, and especially ledger leaves. On the contrary, it is found so convenient to take out leaves and absolutely no trouble to replace them that nothing but dishonesty will prevent its being done so, and, as the company adds, there are too many honest people working to-day to tarry very long with one who will not do honest work, while no devices are fool proof. As an indication of the expense of these filing boxes, the company had 25 each, shipping sheet and bill of lading sizes, made at a cost of 10 cents each.

## BINDLEY HARDWARE COMPANY'S CATALOGUE.

THE BINDLEY HARDWARE COMPANY, Pittsburgh, Pa., has issued general catalogue No. 6, a loose leaf volume containing 1246 pages. It represents the extensive line of Hardware and related goods carried by the company. The opening pages present a general view of the company's large establishment at 401 to 431 Amberson avenue, on the Pennsylvania Railroad, and several interior views showing packing room, House Furnishing Goods section, one of the aisles of shelving and part of basement. A comprehensive index to the contents of the catalogue follows, after which several pages are devoted to an illustrated explanation of the hang of doors, bevel of doors and locks, types of doors and backset and spacing of locks. Useful data in regard to weights and tables is supplied in the closing pages of the book.

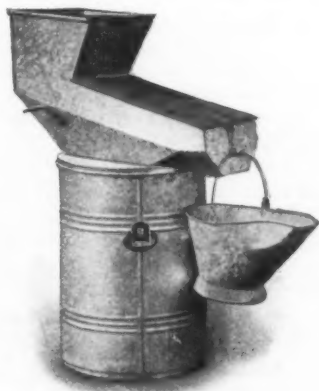
## THE DISSTON HANDBOOK ON SAWS.

HENRY DISSTON & SONS, Philadelphia, Pa., have lately issued and are now distributing their new Lumberman Handbook on Saws, completely revised. It comprises more than 200 pages and contains a treatise on the construction of Saws and how to keep them in order, together with other information of kindred character. Their former book met with much favor, and quite a large demand, and elicited many complimentary letters, in which the interest and value of its contents were enforced. The present edition of the book has been made still more interesting and attractive by the addition of articles on the making of Disston Steel Saws, Tools and Files, giving the progressive manufacturing steps, numerous illustrations of sections of departments of the great plant, &c.

## The Success and Success Jr. Ash Sifters.

The Success Mfg. Company, Gloucester, Mass., is putting on the market the ash sifters illustrated herewith. The Success ash sifter is made of galvanized steel, and is said to be practically indestructible. The screen, which is the only part subjected to much wear, can be easily removed by loosening two bolts and a new screen put in its place. The construction of the casing is such that it can be easily taken off in case a nail or other obstruction becomes stuck in the sieve, preventing its free action. Access to the entire interior of the sifter is thus secured. The form of the casing permits the sifter to shed water perfectly in case it is left outdoors, and it is practically rustproof.

The sifter also prevents water getting into the ash barrel. The sifter is dustproof, and it is said to be impossible for it to become clogged under proper usage, as it



The Success Ash Sifter.

works on the principle of the old-fashioned hand sieve having a flat bottom of galvanized wire, which vibrates in operation and which rests at a slight angle, so that



The Success Jr. Ash Sifter.

the separation of ashes and cinders is complete. The sifter is easy to work, and is provided with either a crank or shaking handle as desired, there being no difference in

price. The Success Jr. ash sifter is designed for family use, where there is only a small amount of ashes to be handled. The sifter is tight, all metal galvanized throughout, and sits on top of barrel. It is intended to fit any iron ash barrel or flour barrel.

### The Bing Glass Cone Burner.

The special feature of the burner manufactured by the Bing Burner Company, Department 13, Minneapolis, Minn., and illustrated herewith, is the substitution of glass instead of brass commonly used for the burner top. To provide for expansion and contraction the glass top



The Bing Glass Cone Burner.

is made in two pieces, and is so assembled and fitted into the brass frame that if broken it can be easily taken out and replaced. To enable it to better withstand the heat of the flame, it is carefully annealed, and the company guarantees against breakage by heat. The advantages claimed for the burner are greater illuminating power, cleanliness, durability and freedom from odor. Each burner is packed in individual cartons, which are then assembled in packages of one dozen each.

In our last issue there appeared an illustrated description of Clark's new palm book husker, manufactured by R. F. Clark, Chicago. Through inadvertence Mr. Clark's address was given as 100 State street, Chicago, instead of 100 Lake street, where correspondence should be addressed.

## PAINTS, OILS AND COLORS

### Animal, Fish and Vegetable Oils—

|                                       |           |
|---------------------------------------|-----------|
| Linseed, City, raw.....               | 43 @44    |
| City, Boiled.....                     | 44 @45    |
| State and Western, raw.....           | 40 @41    |
| Raw, Calcutta, in bbls.....           | 70 @..    |
| Lard, Extra Prime, Winter.....        | 75 @77    |
| Extra No. 1.....                      | 54 @57    |
| No. 1.....                            | 50 @53    |
| Cotton-seed, Crude, f.o.b. mills..... | 42 @43    |
| Summer Yellow, Prime.....             | 55 @58    |
| Summer White.....                     | 55 @58    |
| Yellow Winter.....                    | 58 @60    |
| Sperm, Crude.....                     | 59 @60    |
| Natural Winter.....                   | 72 @73    |
| Bleached Winter.....                  | 75 @76    |
| Bleached Winter, Extra.....           | .. @..    |
| Tallow, Prime.....                    | 60 @62    |
| Whale, Crude.....                     | 35 @36    |
| Natural Winter.....                   | 48 @49    |
| Bleached Winter.....                  | 50 @51    |
| Extra Bleached Winter.....            | 52 @53    |
| Menhaden, Brown, Strained.....        | 35 @36    |
| Light Strained.....                   | .. @..    |
| Northern.....                         | .. @..    |
| Southern.....                         | .. @..    |
| Cocunut, Ceylon.....                  | 8 1/2 @9  |
| Cochin.....                           | 9 1/2 @10 |
| Cod, Domestic, Prime.....             | 36 @38    |
| Newfoundland.....                     | 40 @42    |
| Red, Elaine.....                      | 47 @48    |
| Saponified.....                       | .. @7 1/4 |
| Olive, Italian, bbls, Yellow.....     | 70 @75    |
| Neatsfoot, Prime.....                 | 56 @57    |
| Palm, Logos.....                      | 6 1/2 @7  |

### Mineral Oils—

|   |                |
|---|----------------|
| Black, 29 gravity, 25@30 cold test..... | 12 1/2 @13     |
| 29 gravity, 15 cold test.....           | 13 @13 1/2     |
| Summer.....                             | 12 @12 1/2     |
| Cylinder, light, filtered.....          | 19 @20         |
| Dark, filtered.....                     | 18 1/2 @19 1/2 |
| Paraffine, 905-907 gravity.....         | 13 @13 1/2     |
| 903 gravity.....                        | 13 @13 1/2     |
| 908 gravity.....                        | 10 1/4 @11 1/4 |
| Red.....                                | 13 @14 1/2     |

### Miscellaneous—

|                           |                     |
|---------------------------|---------------------|
| Barytes:                  |                     |
| White, Foreign.....       | 1 ton \$18.50@20.50 |
| Amer. floated.....        | 1 ton 19.00@20.00   |
| Off color.....            | 1 ton 13.00@16.50   |
| Chalk, in bulk.....       | 1 ton 3.00@3.25     |
| In bbls.....              | 100 lb. .. @35      |
| China Clay, Imported..... | 1 ton 11.00@17.50   |
| Cobalt, Oxide.....        | 100 lb. 2.50@2.60   |
| Whiting, Commercial.....  | 100 lb. .43@.52     |
| Gilders.....              | 100 lb. .55@.65     |
| Ex. Gilders.....          | 100 lb. .60@.65     |

### Putty, Commercial—

|                             |            |
|-----------------------------|------------|
| In bladders.....            | 1.70 @1.85 |
| In bbls, or tubs.....       | 1.20 @1.45 |
| In 1 lb to 5 lb cans.....   | 2.65 @2.95 |
| In 1 1/2 to 50 lb cans..... | 1.50 @1.90 |
| In Oil bbls.....            | 56 1/2 @57 |
| In machine bbls.....        | 57 @57 1/2 |

### Glue—

|                        |          |
|------------------------|----------|
| Cabinet.....           | 12 @15   |
| Common Bone.....       | 7 1/2 @9 |
| Extra White.....       | 18 @24   |
| Foot Stock, White..... | 12 @14   |
| Foot Stock, Brown..... | 9 @11    |
| German Hide.....       | 12 @18   |
| French.....            | 13 @16   |
| Low Grade.....         | 19 @12   |
| Medium White.....      | 14 @17   |

### Gum Shellac—

|                           |        |
|---------------------------|--------|
| Bleached, Commercial..... | 36 @39 |
| Bone Dry.....             | 46 @48 |
| Buttton.....              | 40 @50 |
| Diamond I.....            | 54 @56 |
| Fine Orange.....          | 45 @56 |
| A. C. Garnet.....         | 43 @48 |
| G. A. L.....              | 30 @32 |
| Kala Buttton.....         | 30 @32 |
| D. C.....                 | 58 @59 |
| Octagon B.....            | 56 @57 |
| T. N.....                 | 38 @40 |
| V. S. O.....              | 54 @56 |

### Colors in Oil—

|                       |        |
|-----------------------|--------|
| Black, Lampblack..... | 12 @14 |
| Blue, Chinese.....    | 36 @46 |

|                        |        |
|------------------------|--------|
| Blue, Prussian.....    | 32 @36 |
| Blue, Ultramarine..... | 13 @16 |
| Brown, Vandyke.....    | 11 @14 |
| Green, Chrome.....     | 12 @16 |
| Green, Paris.....      | 21 @24 |
| Sienna, Raw.....       | 12 @15 |
| Sienna, Burnt.....     | 12 @15 |
| Umber, Raw.....        | 11 @14 |
| Umber, Burnt.....      | 11 @14 |

### White Lead, Zinc, &c.—

|  |                |
|--|----------------|
| Lead, English white, in Oil.....       | 10 1/2 @10 3/4 |
| Lead, American White:                  |                |
| Lots of 500 lb or over, in Oil.....    | 7 1/4 @7 1/2   |
| Lots less than 500 lb, in Oil.....     | 8 @8 1/4       |
| Lead, White, in oil, 25 lb tin         |                |
| paids, add to keg price.....           | .. @ 1/2       |
| Lead, White, in oil, 12 1/2 lb tin     |                |
| paids, add to keg price.....           | .. @ 1         |
| Lead, White, in oil, 1 to 5 lb         |                |
| ass'ted tins, add to keg price.....    | .. @ 1 1/4     |
| Lead, American, Terms: For lots 12     |                |
| tons and over 1/4% rebate; and 2% for  |                |
| cash if paid in 15 days from date of   |                |
| invoice; for lots of 500 lbs. and over |                |
| 2% for cash if paid in 15 days from    |                |
| date of invoice, for lots of less than |                |
| 500 lbs. no.....                       | .. @ 1 1/2     |
| Zinc, American, dry.....               | 5 1/2 @5 3/4   |
| Zinc, French:                          |                |
| Antwerp, Red Seal, dry.....            | 8 1/2 @9       |
| Antwerp, Green Seal, dry.....          | 10 1/2 @11     |
| Paris, Red Seal, dry.....              | 9 1/2 @10      |
| Paris, Green Seal, dry.....            | 11 @12         |

|   |                |
|---|----------------|
| Zinc, V. M. French, in Poppy Oil:         |                |
| Red Seal:                                 |                |
| Lots of 1 ton and over.....               | 13 1/4 @13 3/4 |
| Lots of less than 1 ton.....              | 13 1/2 @13 3/4 |
| to buyers of 10 bbl, lots of one or mixed |                |
| grades, 1%: 25 bbls, 2%: 50 bbls, 4%:     |                |

### Dry Colors—

|                           |           |
|---------------------------|-----------|
| Black, Carbon.....        | 6 1/4 @10 |
| Black Drop, American..... | 3 1/2 @8  |
| Black Drop, English.....  | 5 @15     |

|                                      |                      |
|--------------------------------------|----------------------|
| Black, Ivory.....                    | 16 @20               |
| Lamp, commercial.....                | 4 @6                 |
| Blue, Celestial.....                 | 4 @6                 |
| Blue, Chinese.....                   | 30 @33               |
| Blue, Prussian.....                  | 28 @32               |
| Blue, Ultramarine.....               | 3 1/2 @15            |
| Brown, Spanish.....                  | 1 1/2 @1             |
| Carmine, No. 40.....                 | 3 1/2 @3.25          |
| Green, Chrome, ordinary.....         | 3 1/2 @5             |
| Green, Chrome, pure.....             | 17 @25               |
| Lead, Red, bbls, 1/2 bbls, kegs..... | 7 1/2 @7 3/4         |
| Litharge, bbls, 1/2 bbls, kegs.....  | 7 1/2 @7 3/4         |
| Ocher, American.....                 | 1 ton \$8.50@16.00   |
| American Golden.....                 | 2 1/2 @3 1/4         |
| French.....                          | 7 1/4 @2             |
| Foreign Golden.....                  | 5 @4                 |
| Orange Mineral, English.....         | 10 @12               |
| French.....                          | 11 1/2 @12           |
| German.....                          | 10 @12               |
| American.....                        | 8 1/2 @9             |
| Red, Indian, English.....            | 4 1/2 @6             |
| American.....                        | 3 @7 1/2             |
| Red, Turkey, English.....            | 4 @10                |
| Red, Tuscan, English.....            | 7 @10                |
| Red, Venetian, Amer.....             | 100 lb \$9.50@1.25   |
| English.....                         | 100 lb \$1.15@1.60   |
| Sienna, Italian, Burnt and           |                      |
| Powdered.....                        | 3 @9                 |
| Italian, Raw, Powdered.....          | 3 @7                 |
| American, Raw.....                   | 1 1/2 @2             |
| American Burnt and Pow'd.....        | 1 1/2 @2             |
| Talc, French.....                    | 1 ton \$18.00@25.00  |
| American.....                        | 1 ton 15.00@25.00    |
| Terra Alba, French.....              | 100 lb .50@1.00      |
| English.....                         | 100 lb .50@1.00      |
| American.....                        | 100 lb No. 1. 75@.80 |
| American.....                        | 100 lb No. 2. 60@.65 |
| Umber, T'ker. Int. & Pow.....        | 9 @3 1/4             |
| Turkey, Raw and Powdered.....        | 2 1/2 @3 1/2         |
| Burnt, American.....                 | 1 1/2 @2             |
| Raw, American.....                   | 1 1/2 @2             |
| Yellow Chrome, Pure.....             | 12 @14               |
| Vermilion, American Lead.....        | 7 @25                |
| Quicksilver, bulk.....               | .. @..               |
| Quicksilver, bags.....               | .. @25               |
| English, Imported.....               | .. @70               |
| Chinese.....                         | 30.90@1.00           |



# Current Hardware Prices.

**General Goods.**—In the following quotations General Goods—that is, those which are made by more than one manufacturer—are printed in *Italics*, and the prices named, unless otherwise stated, represent those current in the market as obtainable by the fair retail Hardware trade, whether from manufacturers or jobbers. Very small orders and broken packages often command higher prices, while lower prices are frequently given to larger buyers.

**Special Goods.**—Quotations printed in the ordinary type (Roman) relate to goods of particular manufacturers, who are responsible for their correctness. They usually represent the prices to the small trade, lower prices being obtainable by the fair retail trade, from manufacturers or jobbers.

**Range of Prices.**—A range of prices is indicated by means of the symbol @. Thus 33½ @ 33½ & 10% signifies

that the price of the goods in question ranges from 33½ per cent. discount to 33½ and 10 per cent. discount.

**Names of Manufacturers.**—For the names and addresses of manufacturers see the advertising columns and also THE IRON AGE DIRECTORY, issued May, 1907, which gives a classified list of the products of our advertisers and thus serves as a DIRECTORY of the Iron, Hardware and Machinery trades.

**Standard Lists.**—"The Iron Age Standard Hardware Lists" contains the list prices of many leading goods.

**Additions and Corrections.**—The trade are requested to suggest any improvements with a view to rendering these quotations as correct and as useful as possible to Retail Hardware Merchants.

## Adjusters, Blind—

Columbian and Domestic.....33½%  
Norus & Co.....10%  
Zimmerman's—See Fasteners, Blind.

## Window Stop—

Ives' Patent.....35%  
Taplin's Perfection.....35%

**Ammunition—**See Caps, Cartridges, Shells, &c.

## Anti-Rattlers—

Fernald Mfg. Co. Burton Anti-Rattlers, ½ doz. pairs, Nos. 1, 50.75; 2, 50.60; 4, 51.00; 5, 50.50.  
Fernald Quick Shifter, ½ doz. pairs \$2.00 @ \$3.00

## Anvils—American—

Eagle Anvils.....½ lb. @ 8½¢  
Hay-Budden, Wrought.....½ lb. @ 9½¢  
Trenton.....½ lb. @ 9½¢

## Imported—

Peter Wright & Sons, ½ lb. 84 to 349 lb. 11¢; 350 to 600 lb. 11½¢.

## Anvil, Vise and Drill—

Millers Falls Co., \$18.00.....15¢10%

## Apple Parers—See Parers, Apple, &c.

## Aprons, Blacksmiths'—

Livingston Nail Co.....33½%

## Augers and Bits—

Conn. Double Spur.....75¢80%  
Jennings' Pat. Bright.....65¢10¢7%  
Black Lip or Blued.....60¢10%  
Boring Mach. Augers.....70¢  
Car Bits, 12-in. twist.....50¢10%  
Ford's Auger and Car Bits.....40¢5%  
Ft. Washington Auger Co., 40¢5%  
ard's.....35%  
Forster Pat. Auger Bits.....25%  
C. E. Jennings & Co., No. 10 ext. lip, R. Jennings' list, 25¢7½%  
No. 30, R. Jennings' list.....25¢7½%  
Russell's Augers.....25¢10¢10%  
L. Hommedieu's Car Bits.....15¢  
Mayhew's Counter Sink Bits.....45¢  
Pugh's Black.....70¢  
Pugh's Jennings' Pattern.....35¢  
Snell's Auger Bits.....60¢  
Snell's Bell Hangers' Bits.....60¢  
Snell's Car Bits, 12-in. twist.....60¢  
Snell's King Auger Bits.....50¢  
Wright's Jennings' Bits.....50%

## Bit Stock Drills—

See Drills, Twist.

## Expansive Bits—

Clark's Pattern, No. 1, ½ doz. 35¢  
No. 2, 318.....60¢10%  
Ford's, Clark's Pattern.....60¢5%  
C. E. Jennings & Co., No. 10, 10¢  
Lavigne Pat., small size, \$18.00; large size, \$26.00.....60¢10%  
Swan's.....60%

## Gimlet Bits—

Common Dble. Cut.....\$3.00 @ \$3.25  
German Pattern, No. 1 to 10, \$4.75; 11 to 13, \$5.75

## Hollow Augers—

Bonney Pat., per doz. \$5.50 @ \$7.00  
Ames.....25%  
Universal.....25%

## Ship Augers and Bits—

Ship Augers.....40¢10%  
Ford's.....33½¢5%  
C. E. Jennings & Co., L. Hommedieu's.....6%  
Watrous's.....33½¢7½%  
Snell's.....48%

## Awl Hfts—See Handles, Mechanics' Tool.

## Awls—

Brad Awls:  
Handled.....gro. \$2.75 @ \$3.00  
Unh'dled, Sh'dered.....gro. \$3.00 @ \$3.25  
Unh'dled, Patent.....gro. \$3.00 @ \$3.25

## Peg Awls—

Unh'dled, Patent.....gro. \$1 @ \$1.10  
Unh'dled, Sh'dered.....gro. \$1 @ \$1.10

## Scratch Awls—

Handled, Com.....gro. \$3.50 @ \$4.00  
Handled, Socket.....gro. \$1.10 @ \$1.20

## Awl and Tool Sets—See Sets, Awl and Tool.

## Axes—

Single Bit, base weights: Per doz.  
First Quality.....\$1.75 @ \$2.00  
Second Quality.....\$1.25 @ \$1.50

## Double Bit, base weights:

First Quality.....\$7.00 @ \$7.50  
Second Quality.....\$6.50 @ \$7.00

## Axle Grease—

See Grease, Axle

## Axles—

Iron or Steel

Concord, Loose Collar.....4½¢5%  
Concord, Solid Collar.....4½¢5%  
No. 1 Common, Loose.....3½¢4½%  
No. 1½ Com., New Style.....4½¢5%  
No. 2 Solid Collar.....4½¢5%  
Half Patent:  
Nos. 7, 8, 11 and 12.....60¢65%  
Nos. 13 to 14.....60¢65%  
Nos. 15 to 18.....65¢70%  
Nos. 19 to 22.....65¢70%

## Boxes, Axle—

Common and Concord, not turned lb., 5¢ @ 6¢

Common and Concord, turned lb., 6¢ @ 7¢

Half Patent.....lb., 9¢ @ 10¢

## Bait—

Fishing—

Hendryx:  
A Bait.....20%  
B Bait.....20%  
Competitor Bait.....20¢45%

## Balances—

Sash—

Caldwell new list.....50%  
Fullman.....50¢10¢60%

## Spring—

Spring Balances.....50¢10¢60%

Chattillon's:  
Light Spg. Balances.....50¢50¢10%  
Straight Balances.....40¢40¢10%  
Circular Balances.....50¢10%  
Large Dial.....30%

## Barb Wire—See Wire, Barb.

## Bars—

Crow—

Steel Crowbars, 10 to 40 lb. per lb., 2½¢ @ 3¢

## Towel

No. 10 Ideal, Nickel Plate.....½ gro. \$2.50

## Beams, Scale—

Scale Beams.....40%  
Chattillon's No. 1.....30%  
Chattillon's No. 2.....40%

## Beaters, Carpet—

Holt-Lyon Co.:  
No. 12 Wire Coppered ½ doz. \$0.80;  
Tinned.....\$0.85  
No. 11 Wire Coppered ½ doz. \$1.15;  
Tinned.....\$1.20  
No. 10 Wire Tinned.....½ doz. \$1.50

## Beaters, Egg—

Holt-Lyon Co.:  
Holt, per doz., No. 5, Jap'd, \$0.80;  
No. A, Jap'd, \$1.15; No. B, Jap'd, \$1.85; No. 6, Jap'd, \$1.65;  
Lyon, Jap'd, per doz., No. 2, \$1.35.

## Taplin Mfg. Co.: Improved Dorer, per gro., No. 60, \$6.00; No. 75, \$6.50; No. 100, \$7.00; No. 102, Tin'd, \$8.50; No. 150, Hotel, \$15.00; No. 152, Hotel Tin'd, \$17.00; No. 200, Tumbler, \$3.50; No. 202, Tumbler Tin'd, \$9.50; No. 300, Mammoth, per doz., \$25.00.

Turner & Seymour Mfg. Co.:  
T. & S. Dorer.....\$6.50

## Bellows—

Blacksmith, Standard List:  
Split Leather.....60¢10¢65%  
Grain Leather.....50¢50¢10%

## Hand—

Inch.....6 7 8 9 10  
Doz. \$5.00 5.50 6.00 6.50 7.50

## Molders—

Inch.....10 12 14 16  
Doz. \$7.50 9.00 12.00 15.00

## Bells—

Cow—  
Ordinary Goods.....75¢5¢75¢10¢5%  
High grade.....70¢10¢75%  
Jersey.....75¢10%  
Texas Star.....30%

## Door—

Home, R. & E. Mfg. Co.'s.....55¢10%

## Hand—

Polished, Brass.....50¢50¢10%  
White Metal.....50¢50¢5%  
Nickel Plated.....50%  
Swiss.....50%  
Cone's Globe Hand Belts.....33½¢50%

## Miscellaneous—

Farm Bells.....lb., 2½¢ @ 2½¢  
Church and School.....60¢60¢5%

## Belting—

Leather—  
Extra Heavy, Short Lap.....60¢45%  
Regular Short Lap.....60¢10¢45%  
Standard.....70¢45%  
Light Standard.....75%  
Cut Leather Lacing.....40¢45%  
Leather Lacing Sides, per sq. ft. 25¢

## Rubber—

Agricultural (Low Grade).....75¢75¢45%  
Common Standard.....70¢70¢10%  
Standard.....70¢70¢45%  
Ez. 70.....60¢5¢80¢10%  
High Grade.....50¢5¢50¢10%

## Bench Stops—

See Stops, Bench

## Benders and Upsetters, Tire—

Green River Tire Benders and Upsetters.....30%

## Bicycle Goods—

John S. Leng's Son & Co.'s 1907 list:  
Chain, Parts, Spokes.....50%  
Tubes.....60%

## Bits—

Auger, Gimlet, Bit Stock Drills, &c.—See Augers and Bits.

## Blocks—

Tackle—  
Common Wooden.....75%  
B. & L. B. Co.:  
Boston Wood Snatch, 50%; Eclipse Steel, 75%; Hollow Steel, 50¢10%; Star Wire Rope, 50%; Tarbox Metal Snatch, 50%; Tarbox New Style Steel, 50¢10%; Wire Rope Snatch, 50%.

Lucas' Patent Automatic Lock and Junior.....30%  
See also Machines, Hoisting.

## Boards, Stove—

Paper and Wood Lined.....40%  
Embossed.....50%

## Boards, Wash—

See Washboards.

## Bobs, Plumb—

Keuffel & Esser Co.....33½%

## Bolts—

Carriage, Machine, &c.—  
Common Carriage (cut thread):  
¾ x 6 and smaller.....70¢5¢10%  
Larger and Longer.....60¢2½¢10%  
Phila. Eagle \$3.00 list May 24, '99

Bolt Ends.....65¢65¢5%  
Machine (cut thread):  
¾ x 4 and smaller.....70¢7½¢10%  
Larger and longer.....60¢7½¢10%

## Door and Shutter—

Cast Iron Barrel, Japanned, Round Brass Knob:  
Inch.....3 4 5 6 8  
Per doz. \$1.30 1.35 1.45 1.50 1.60

Cast Iron Spring Foot, Jap'd:  
Inch.....6 8 10  
Per doz. \$1.20 1.50 1.25

Cast Iron Chain, Flat Japanned:  
Inch.....6 8 10  
Per doz. \$1.00 1.40 1.65

Cast Iron Flat Shutter, Jap'd, Brass Knobs:  
Inch.....6 8 10  
Per doz. \$0.75 1.05 1.25

Wrought Barrel Jap'd.....80¢80¢10%  
Barrel Bronzed.....80¢10%  
Spring.....70¢10¢70¢10¢10%  
Shutter.....50¢5¢50¢10¢5%  
Square Neck.....75¢75¢10%  
Square.....70¢10¢10%

Ives' Patent Door.....55%  
Ives' Wrought Metal.....45%

## Expansion—

Richards Mfg. Co.....50¢10%

## Plow and Stove—

Plow.....65¢5¢10%  
Stove.....85¢85¢5%

## Tire—

Common Iron.....80%  
Norway Iron.....80%  
American Screw Company:  
Norway Phila., list Oct. 16, '81.....80%  
Eagle Phila., list Oct. 16, '81.....82½%  
Bay State, list Dec. 28, '99.....80%  
Franklin Moore Co.:  
Norway Phila., list Oct. 16, '81.....80%  
Eagle Phila., list Oct. 16, '81.....82½%  
Eclipse, list Dec. 28, '99.....80%  
Russell, Burdall & Ward Bolt & Nut Co.:  
Empire, list Dec. 28, '99.....80%  
Norway Phila., list Oct. 16, '81.....80%  
Eagle.....82½%  
Shelton Co.:  
Tiger Brand, list Dec. 28, '99.....80%  
Phila., Eagle, list Oct. 16, 1881.....82½%  
Upson Nut Co.:  
Tire Bolts.....72½%

## Borers, Bung—

Borers Bung, Ring, with Handle:  
Inch.....1¼ 1½ 1¾ 2  
Per doz. \$4.80 5.60 6.40 8.00

Inch.....2¼ 2½  
Per doz. \$5.65 11.50

Enterprise Mfg. Co., No. 1, \$1.25; No. 2, \$1.75; No. 3, \$2.50 each.....25%

## Boxes, Mitre—

C. E. Jennings & Co.....25%  
Langdon, New Langdon and Langdon Improved, 20¢10%; Langdon Acme.....15¢10%  
Perfection.....40%  
Seavey's.....45%

## Braces—

Common Ball, American.....\$1.50  
Barber's.....50¢10¢60¢10%  
Fray's Genuine Spofford's.....60%  
Fray's No. 70 to 120, 81 to 123, 207 to 414.....60%  
C. E. Jennings & Co.....50¢5%  
Mayhew's Ratchet.....60%  
Mayhew's Quick Action Hay Pat. 50%  
Millers Falls Drill Braces.....25¢10%  
P. S. & W. Co., Peck's Pat. 60¢10%

## Brackets—

Wrought Steel.....70¢10¢75¢10%  
Bradley Metal Clasp, 80¢10¢80¢10%  
Griffin's Pressed Steel.....75¢75¢10%  
Griffin's Folding Brackets.....70¢10%  
Taplin Victor Handy Egg Beater Bracket.....½ doz. \$1.50

## Bright Wire Goods—

See Wire and Wire Goods.

## Broilers—

Kilbourne Mfg. Co.....75¢20%  
Wire Goods Co.....75%

**Buckets, Galvanized—**  
Mfg'r's list, price per gross.  
Quart. 10 12 14  
Water, Reg.....25.35 28.00 32.00  
Water, Hvy.....45.35 48.00 52.00  
Fire, Rd. Btm. 32.00 34.65 38.65  
Well.....37.35 41.35 45.35

**Bull Rings—See Rings, Bull**

## Butts—

Brass—  
Wrought, High List, Oct. 26, '06, 45¢45¢10%

## Cast Iron—

Fast Joint, Broad.....40¢10¢50%  
Fast Joint, Narrow.....40¢10¢50%  
Loose Joint.....70¢10¢75%  
Loose Pin.....70¢10¢75%  
Mayer's Hinges.....70¢70¢5%  
Parliament Butts.....70¢70¢5%

## Wrought Steel—

Discount.  
Reversible and Broad.....70¢5%  
Light Reversible, Light Nar. 70¢5%  
Loose Joint, Narrow, Light 70¢5%  
Inside Blind, etc.....70%  
Back Flaps, Table Chest.....65%

## Cages, Bird—

Hendryx Brass: Series 3000, 5000, 1100, net list: 1200, 15%; 200, 300, 500.....30%

Hendryx Bronze; Series 700, 800...30%  
Hendryx Enameled.....35%

**Calipers—See Compasses.****Calks, Toe and Heel—**

Blunt, 1 prong, per lb., 4 1/4 @ 4 3/4¢  
Sharp, 1 prong, per lb., 4 3/4 @ 5 1/4¢  
Burke's, Blunt, 4 @ 4 3/4¢; Sharp, 4 @ 5 1/4¢  
Lautier, Blunt, 4 @ 4 3/4¢; Sharp, 4 @ 5 1/4¢  
Verkins', Blunt, 1 lb., 3.50¢; Sharp, 4.15¢

**Can Openers—**

See Openers, Can.

**Caps, Percussion—**

Eley's E. B. .... 52 @ 55¢  
G. D. .... per M 34 @ 35¢  
F. L. .... per M 40 @ 42¢  
G. E. .... per M 40 @ 50¢  
Musket .... per M 62 @ 63¢

**Primers—**

Berdan Primers, \$2 per M. .... 20¢  
Primer Shells and Bullets. .... 15¢  
All other primers per M. \$1.52 @ 1.60

**Carpet Stretchers—**

See Stretchers, Carpet.

**Cartridges—**

Blank Cartridges:  
32 C. F., \$5.50 ..... 10¢  
38 C. F., \$7.00 ..... 10¢  
22 cal. Rem., \$1.50 ..... 10¢  
32 cal. Rem., \$2.75 ..... 10¢  
B. B. Cape, Con. Ball, Sigd., \$1.40  
B. B. Cape, Round Ball, \$1.40  
Central Fire, \$2.50 ..... 25¢  
Target and Sporting Rifle, \$1.50  
Primed Shells and Bullets, \$1.50  
Rim Fire, Sporting ..... 50¢  
Rim Fire, Military ..... 15¢

**Castors—**

Bed ..... 65¢  
Plate ..... 60¢  
Philadelphia ..... 70¢  
Acme, Ball Bearing ..... 35¢  
Gem (Roller Bearing) ..... 70¢  
Steel Gem ..... 20¢  
Standard Ball Bearing ..... 45¢  
Yale (Double Wheel) low list. .... 10¢

**Cattle Leaders—**

See Leaders, Cattle.

**Chain, Proof Coil—**

American Coil, Straight Link:  
5-10 1/4 0-16 1/4 7-16 1/4 9-16  
\$8.77 6.17 5.02 4.57 4.37 4.27 4.22  
3/8 1/2 5/8 3/4 7/8 1 1 1/8 to 1 1/2 inch.  
\$1.77 4.07 4.02 4.12  
In cask lots, deduct 25¢.  
German Coil:  
6-9 to 1 ..... 70¢  
2 and 3 ..... 60¢  
4, 5 and 6 ..... 50¢

**Halter—**

Halter Chains ..... 60¢  
German Pattern Halter Chains  
List July 24, '97 ..... 60¢  
Covert Mfg. Co. .... 35¢

**Cow Ties—**

See Halters and Ties.

**Trace, Wagon, &c.—**

Traces, Western Standard: 100 pr.  
6 1/2-6 3/4, Straight, with ring. \$28.00  
6 1/2-6 3/4, Straight, with ring. \$29.00  
6 1/2-8 1/4, Straight, with ring. \$32.00  
6 1/2-10 1/4, Straight, with ring. \$37.00  
NOTE—Add 2¢ per pair for Hooks  
Twist Traces, add per pair for Nos. 2  
and 3, 2¢; No. 1, 3¢; No. 4, 4¢ to price  
of Straight Link.

Eastern Standard Traces, Wag-  
on Chain, &c. .... 60%

**Miscellaneous—**

Jack Chain, list July 10, '93:  
Iron ..... 60¢  
Brass ..... 50¢  
Safety and Plumbers' Chain,  
60¢  
Gal. Pump Chain, 1 lb. 4 1/2 @ 4 3/4¢  
Covert Mfg. Co.:  
Brest, Halter, Heel, Rein, Stal-  
lion ..... 40¢  
Oneida Community:  
American Halter, Dog and Kennel  
Chains ..... 35¢  
Niagara Dog Leads and Kennel  
Chains ..... 45¢  
Vire Goods Co.:  
Dog Chain ..... 70¢  
Universal Dbl.-Jointed Chain ..... 50¢

**Chain and Ribbon, Sash—**

Oneida Community:  
Steel Chain ..... 60¢  
Pullman:  
Bronze Chain, 60%; Steel Chain,  
60¢  
Sash Chain Attachments, per set. 3¢  
Aluminum Sash Ribbon, per 100  
ft. .... \$1.25 @ \$3.00  
Sash Ribbon Attachments, per set. 8¢

**Chalk—(From Jobbers.)**

Carpenters' Blue ..... 50¢  
Carpenters' Red ..... 45¢  
Carpenters' White ..... 40¢

**Checks, Door—**

Bardley's ..... 45¢  
Pullman, per gro. .... 55¢  
Russwin ..... 35¢

**Chests, Tool—**

American Tool Chest Co.:  
Boys' Chests, with Tools ..... 50¢  
Youths' Chests, with Tools ..... 25¢  
Gentlemen's Chests, with Tools ..... 25¢  
Farmers', Carpenters', etc., Chests,  
with Tools ..... 20¢  
Machinists' and Pipe Fitters'  
Chests, Empty ..... 45¢  
Tool Cabinets ..... 45¢  
C. E. Jennings & Co.'s Machinists'  
Tool Chests ..... 75¢

**Chisels—**

Socket Framing and Firmer  
Standard List ..... 70¢  
Buck Bros. .... 30¢  
C. E. Jennings & Co.:  
Socket Firmer No. 10 ..... 25¢  
Socket Framing No. 15 ..... 25¢  
Swan's ..... 66¢  
L. & I. J. White Co. .... 30¢

**Tanged—**

Tanged Firmers ..... 30¢  
Buck Bros. .... 30¢  
C. E. Jennings & Co. Nos. 191, 181, 182  
L. & I. J. White Co. .... 25¢

**Cold—**

Cold Chisels, good quality. .... 13¢  
Cold Chisels, fair quality. .... 11¢  
Cold Chisels, ordinary ..... 9¢

**Chucks—**

Almond Drill Chucks ..... 35¢  
Almond Turret Six-Tool Chuck ..... 40¢  
Beach Pat., each \$8.00 ..... 35¢  
Empire ..... 25¢  
Blacksmiths' ..... 25¢  
Jacobs' Drill Chucks ..... 25¢  
Pratt's Positive Drive ..... 25¢  
Skinner Patent Chucks:  
Independent Lathe Chucks ..... 35¢  
Universal, Reversible Jaws ..... 35¢  
Combination, Reversible Jaws ..... 35¢  
Drill Chucks, New Model, 25¢;  
Standard, 45¢; Skinner Pat.,  
25¢; Positive Drive ..... 40¢  
Planer Chucks ..... 30¢  
Face Plate Jaws ..... 35¢  
Standard Tool Co.:  
Improved Drill Chuck ..... 45¢  
Union Mfg. Co.:  
Combination, Nos. 1, 2, 3, 4, 5, 6,  
7, 8 and 17, 40¢; No. 21 ..... 35¢  
Scroll Combination, Nos. 83 and  
84 ..... 30¢  
Geared Scroll, Nos. 33, 34 and 35 ..... 25¢  
Independent Iron, Nos. 18 and 31 ..... 35¢  
Independent Steel, No. 61 ..... 25¢  
Union Drill, Nos. 60, 100, 101,  
102, 103, 104 ..... 35¢  
Union Czar Drill ..... 25¢  
Universal, 11, 12, 16, 17, 13, 14, 15, 40¢  
Universal, No. 42 ..... 35¢  
Iron Face Plate Jaws, Nos. 28, 30,  
48 and 50 ..... 35¢  
Steel Face Plate Jaws, Nos. 70 and  
72 ..... 30¢  
Westcott Patent Chucks:  
Lathe Chucks ..... 50¢  
Little Giant Auxiliary Drill ..... 50¢  
Little Giant Double Grip Drill ..... 50¢  
Little Giant Drill, Improved ..... 50¢  
Oneida Drill ..... 50¢  
Scroll Combination Lathe ..... 50¢

**Clamps—**

Adjustable Hammers ..... 20¢  
Carrage Makers', P. S. & W.  
Co. .... 50¢  
Realy, Parallel ..... 35¢  
Myers Hay Rack ..... 45¢  
Lineman's Swedish Neverturn ..... 65¢  
Wood Workers, Hammers ..... 40¢  
Saw Clamps, see Vices, Saw Filers.

**Cleaners, Drain—**

Iwan's Champion, Adjustable ..... 50¢  
Iwan's Champion, Stationary ..... 40¢

**Sidewalk—**

Star Socket, All Steel, 1/2 doz. \$4.05 net  
Star Shank, All Steel, 1/2 doz. \$3.24 net  
W. & C. Shank, All Steel, 1/2 doz.,  
7 1/2 in., \$3.00; 8 in., \$3.25.

**Cleavers, Butchers—**

Foster Bros. .... 30¢  
Fayette R. Plumb ..... 30¢  
L. & I. J. White Co. .... 30¢

**Clippers, Horse and**

Chicago Flexible Shaft Company:  
1902 Chicago Horse, each. \$10.75  
20th Century Horse, each. \$5.00  
Lightning Belt Horse, each. \$15.00  
Chicago Belt Horse, each. \$20.00  
Stewart's Enclosed Gear  
Horse, each ..... \$4.75  
Stewart's Patent Sheep Shear-  
ing Machine, each ..... \$12.75  
Stewart Enclosed Gear Shear-  
ing Machine, No. 8, each. \$9.75

**Clips, Axle—**

Regular Styles, list July 1, '05,  
30¢ @ 50¢ @ 70¢

**Cloth and Netting, Wire**

—See Wire, &c.

**Cocks, Brass—**

Hardware List:  
Plain Bibbs, Globe, Kerosene,  
Racking, Liquor, Bottling,  
&c. .... 60¢  
Compression Bibbs ..... 55¢

**Coffee Mills—**

See Mills, Coffee.

**Collars, Dog—**

Nickel Chain, Walter B. Stevens &  
Son's list ..... 40¢  
Leather, Walter B. Stevens & Son's  
list ..... 40¢

**Compasses, Dividers, &c.**

Ordinary Goods ..... 70¢  
Wm. Schollhorn Co. .... 75¢  
Excelsior Dividers ..... 60¢  
Lodi Dividers ..... 70¢

**Conductor Pipe—**

L. C. L. to Dealers:

| Galv. Steel                     | Charcoal Iron                      | Copper                             |
|---------------------------------|------------------------------------|------------------------------------|
| Eastern:                        | 1 1/2, 1 3/4, 2, 2 1/2, 3, 4, 6, 8 | 1 1/2, 1 3/4, 2, 2 1/2, 3, 4, 6, 8 |
| Central:                        | 60%                                | 30¢ @ 10%                          |
| Western and Southern:           | 60%                                | 30¢ @ 10%                          |
| So. Western:                    | 55¢ @ 5%                           | 30¢ @ 7 1/2%                       |
| Terms, 60 days, 2% cash 10 days |                                    |                                    |

See also Eave Troughs.

**Coolers, Water—**

L. & G. Mfg. Co.:  
Gal. .... 2 3 4 6 8  
Galvanized, ca. \$1.85 \$2.00 \$2.25 \$2.50 \$3.00  
Galvanized, Lined, side handles,  
Gal. .... 2 3 4 6 8  
Each ..... \$1.95 \$2.15 \$2.40 \$3.30 \$4.15  
White Enameled ..... 10¢  
Agate Lined ..... 10¢

**Coopers' Tools—**

See Tools, Coopers'.

**Coppers' Soldering—**

Soldering Coppers, 3 lbs. to pair  
and heavier, 30¢ @ 35¢; lighter  
than 3 lb. to pair ..... 32¢ @ 35¢

**Cord— Sash—**

Braided, Drab, 1 lb. 35¢  
Braided, White, Com., Nos. 8  
to 12, 26¢; No. 7, 26 1/2¢; No. 6,  
27 1/2¢.

**Cable Laid Italian, lb., No. 18, 37¢**

Italian, lb., A, No. 18, 35¢; B, 22¢

Common India, lb., 11¢ @ 11 1/2¢

Cotton Sash Cord, Twisted, 18¢ @ 20¢

Patent Russia, lb. .... 20¢

Cable Laid Russia, lb. .... 21¢

India Hemp, Br'd'd., lb. .... 21¢

India Hemp, Twisted, lb. 13¢ @ 14¢

Patent India, Twisted, lb. .... 17¢

Wire Braided, cotton, No. 6, 1/2 lb.,  
27 1/2¢; No. 7, 26 1/2¢; Nos. 8 to 12, 26¢

Edgystone, Braided, Nos. 8 to 12,  
26¢; 7, 26 1/2¢; 6, 27 1/2¢.

Harmony Cable Laid Italian, Nos. 7  
to 10, 26¢ @ 27 1/2¢

Pullman:  
Wash Cord ..... 18¢

Sash Cord Attachments, per doz. 10¢

Samson, Nos. 8 to 12:

Braided, 1/2 lb., Drab Cotton,  
55¢; Italian Hemp, 40¢ @

50¢; Linen, 65¢; White Cot-  
ton, 55¢; Spot Cord, 50¢

Massachusetts, White, 1/2 lb. 40¢

Phoenix, White, Nos. 8 to 12, 27¢

Silver Lake, per lb.:  
A, Drab, 45¢; A, White, 40¢;  
B, Drab, 40¢; B, White, 35¢;  
Italian Hemp, 40¢; Linen, 57 1/2¢

See also Chain and Ribbon.

**Wire, Picture—**

List July 10, 1906 ..... 90¢ @

Hendryx Standard Wire Picture Cord,  
old list, 85¢ @ 10%

Turner & Stanton Co. Wire Picture  
Cord ..... 85¢ @ 10%

**Cradles—**

Grain ..... 40¢ @ 12 1/2%

**Crayons—**

White Round Crayons, Cases, 100  
gro., \$5.50 @ \$7.50 at factory, but  
lower prices made by jobbers

Zelnicke's Lumber, 1/2 gro.,  
White and Purple, Indelible, \$7.50  
Blue, Red, Green, Yellow and  
Terra Cotta, \$6.50; Black, \$4.00

Giant Lumber, 5 1/4 in. x 15-16 in.  
round, all colors, \$16.25; Indeli-  
bles ..... \$18.75

Genuine Soapstone, Metal Workers',  
5 in. x 4 in. Round, \$2.50; 5 in. x  
3 1/4 in. Square, \$1.75; 5 x 1 1/2 x 3-16,  
\$2.50; 5 x 1 1/4 x 3-16 ..... \$3.00

**Crooks, Shepherds—**

Fort Madison, per doz., Heavy, \$5.50;  
Light ..... \$5.00

**Crow Bars—See Bars, Crow.****Cultivators—**

Victor Garden ..... 50%

**Cutlery, Table—**

International Silver Company:  
No. 12 M'd'm Knives, 1847, 1/2 doz. \$3.50

Star, Eagle, Rogers & Hamilton  
and Anchor ..... 1/2 doz. \$3.00

Wm. Rogers & Son ..... 1/2 doz. \$2.50

**Cutters—Glass—**

H. H. Mayhew Co. .... 40%

Red Devil ..... 60%

B. Mfg. Co. .... 40%

Woodward ..... 50%

**Meat and Food—**

American ..... 30%

Nos. .... 401 402 403 404 405 406 407

Each ..... \$5 \$7 \$10 \$12 \$25 \$50 \$90

Enterprise:  
Nos. .... 5 10 12 22 32

Each ..... \$2 \$3 \$2.75 \$1.50 \$6 \$25 @ 25¢ @ 7 1/2%

No. 202, \$1.50 ..... 40¢ @ 7 1/2%

P. S. & W. Co.:  
Dixon's ..... 1/2 doz. 33 1/4%

Nos. .... 1 2 3 4

Ideal ..... \$11.00 \$17.00 \$19.00 \$30.00

His ..... 40¢ @ 45¢

Little Giant ..... 1/2 doz. 40¢ @ 50¢

Nos. .... 303 310 312 320 322

Each ..... \$35.00 \$48.00 \$14.00 \$72.00 \$68.00

New Triumph No. 605, 1/2 doz. \$24.00

Russwin Food, No. 1, \$24.00; No. 2,  
\$27.00 ..... 45¢ @ 10%

Enterprise Beef Shavers ..... 25¢ @ 30%

**Slaw and Kraut—**

Henry Disston & Sons:  
Slaw and Kraut Cutters ..... 35¢  
Corn Graters ..... 30¢  
J. M. Mast Mfg. Co.:  
Slaw Cutters, 1 Knife, 1/2 doz. \$3.00  
Combined Slaw Cutter and Corn  
Grater ..... 1/2 doz. \$4.00

**Tobacco—**

All Iron, Cheap, doz. \$1.25 @ \$1.50  
Enterprise ..... 25¢ @ 30¢  
National, 1/2 doz., No. 1, \$21; No. 2,  
\$18 ..... 40%

**Diggers, Post Hole, &c.—**

Disston's:

Rapid, 1/2 doz., \$24.00 ..... 25%

Samson, 1/2 doz., \$34.00 ..... 25%

Iwan's Imp'd Post Hole Auger, 40%

Vaughan Pattern Post Hole Augers,  
1/2 doz., \$7.00

Perfection Post Hole Diggers, 1/2  
doz. .... \$8.75

Split Handle Post Hole Diggers,  
1/2 doz., \$7.75

Hercules Pattern, 1/2 doz. .... \$10.00

Kohler's, 1/2 doz., Universal, \$15.00;

Little Giant, \$12.00; Hercules,  
\$10.00; Invincible, \$9.00; Rival,  
\$8.50; Pioneer ..... \$7.50

Never-Break Post Hole Diggers, 1/2  
doz., \$24.00 ..... 60%

**Dividers—See Compasses.****Drawing Knives—**

See Knives, Drawing.

**Dressers, Emery Wheel—**

Sterling Emery Wheel Dressers ..... 35%

Sterling Wheel Dresser Cutters ..... 35%

**Drills and Drill Stocks—**

Blacksmiths' Common Drilling  
Machines ..... \$1.50 @ \$1.75

Breast, Millers Falls ..... 1.00 @ 1.10

Breast, P. S. & W. .... 33 1/2%

Goodell Automatic Drills, 50¢ @ 60¢ @ 10%

Millers Falls Automatic Drills, 33 1/2¢ @ 10%

Hatchet, Curtis & Curtis ..... 25%

Hatchet, Parker's ..... 40%

Hatchet, Weston's ..... 40%

Hatchet, Weston's, Style H Im-  
proved, No. 02 ..... 40%

Hatchet, Celebrated ..... 40%

Hatchet, Whitney's, P. S. & W.,  
50¢ @ 5%

Whitney's Hand Drill, No. 1, \$10.00;  
Adjustable, No. 10, \$12.00 ..... 33 1/2%

**Twist Drills—**

Bit Stock ..... 60¢ @ 10¢ @ 10¢ @ 70%



**Extractors, Lemon Juico**

—See Squeezers, Lemon.

**Fasteners, Blind—**Zimmerman's ..... 50¢ 10%  
Walton's ..... 40¢ 10%  
Upon's Patent ..... 40%**Cord and Weight—**

Ives and Titian ..... 33½%

**Faucets—**Cork Lined ..... 50¢ 10¢ 60%  
Metallic Key, Leather Lined ..... 60¢ 10¢ 70%Red Cedar ..... 40¢ 5¢ 10¢ 65%  
Petroleum ..... 70¢ 10¢ 75%B. & L. B. Co.:  
Metal Key ..... 60¢ 10%  
Star ..... 60%  
West Lock ..... 40%John Sommer's Peerless Tin Key ..... 40%  
John Sommer's Boss Tin Key ..... 50%John Sommer's Victor Mtl. Key ..... 50%  
John Sommer's Duplex Metal Key ..... 60%John Sommer's Diamond Lock ..... 40%  
John Sommer's I. X. L. Cork Lined ..... 50%John Sommer's Reliable Cork Lined ..... 50%  
John Sommer's Chicago Cork Lined ..... 60%John Sommer's O. K. Cork Lined ..... 50%  
John Sommer's No Brand, Cedar ..... 50%John Sommer's Perfection, Cedar ..... 40%  
Self Measuring ..... 40%  
Enterprise, ½ doz. \$36.00 ..... 40% 10%  
Lane's, ½ doz. \$36.00 ..... 40% 10%  
National Measuring, ½ doz. \$36.00 ..... 40% 10%**Felloe Plates—**

See Plates, Felloe.

**Files— Domestic—**

List Nov. 1, 1899.

Best Brands ..... 70¢ 10¢ 75¢ 10%  
Standard Branch ..... 75¢ 10¢ 80%

Lower Grade ..... 70¢ 10¢ 100% 10% 10% 10%

**Imported—**

Stubs' Tapers, Stubs' list, July 24, '97 ..... 33 1-3 40%

**Fixtures, Fire Door—**Allith Underwriters' Approved ..... 50%  
Richards Mfg. Co.:  
Universal, No. 103; Special, No. 104 ..... 33.75Fusible Links, No. 96 ..... 50%  
Expansion Bolts, No. 107 ..... 60% 10%**Grindstone—**Inch ..... 15 17 19 21  
Per doz. ..... \$3.00 3.85 4.25 4.65P. S. & W. Co. ..... 25%  
Reading Hardware Co. ..... 60%**Fodder Squeezers—**

See Compressors.

**Forks—**

NOTE.—Manufacturers are selling from the list of September 1, 1904, but many jobbers are still using list of August 1, 1899, or selling at net prices.

Iowa Dig-Ezy Potato ..... 60% 10%  
Victor, Hay ..... 60% 15¢ 24%Victor, Manure ..... 60% 15¢ 24%  
Victor, Header ..... 60%  
Champion, Hay ..... 60%  
Champion, Header ..... 60%  
Champion, Manure ..... 60% 15¢ 24%Columbia, Hay ..... 60% 20%  
Columbia, Manure ..... 70%  
Columbia, Spading ..... 70% 12%Hawkeye Wood Barley ..... 60% 10%  
W. & C. Potato Digger ..... 60% 10%  
Acme Hay ..... 60% 20%  
Acme Manure, 4 tie ..... 60% 10% 45%Dakota Header ..... 60% 20%  
Jackson Steel Barley ..... 60% 20%  
Kansas Header ..... 60%  
W. & C. Favorite Wood Barley ..... 60%  
Plated.—See Spoons.**Frames— Wood Saw—**White, S'g't Bar, per doz. 75¢ 80¢  
Red, S'g't Bar, per doz. \$1.00 1.25

Red, Dbl. Brace, per doz. \$1.40 1.50

**Freezers, Ice Cream—**Qt. .... 1 2 3 4 8  
Each ..... \$1.25 1.60 1.90 2.20 2.80**Fruit and Jelly Presses—**

See Presses, Fruit and Jelly.

**Fry Pans— See Pans, Fry.****Fuse—**

Per 1000 Feet.

Hemp ..... \$2.75  
Cotton ..... 3.20Waterproof Spl. Taped ..... 3.65  
Waterproof Dbl. Taped ..... 4.40  
Waterproof Tpl. Taped ..... 5.15**Gates, Molasses and Oil—**

Stebbins' Pattern ..... 75¢ 80%

**Gauges—**Marking, Mortise, &c. 50¢ 50¢ 10%  
Chapin-Stephens Co.:  
Marking, Mortise, &c. 50¢ 50¢ 10%  
Marking, Mortise, &c. 67½%  
Wire, Brown & Sharpe's ..... 33½%  
Wire, Morse's ..... 33½%  
Wire, P. S. & W. Co. ..... 33½%**Gimlets— Single Cut—**

Numbered assortments, per gro.

Nail, Metal, No. 1, \$2.00; 2, \$2.30  
Spike, Metal, No. 1, \$1.00; 2, \$1.30Nail, Wood Handled, No. 1, \$2.50; 2, \$2.80  
Spike, Wood Handled, No. 1, \$1.50; 2, \$1.80**Glass, American Window**

See Trade Report.

**Glasses, Level—**

Chapin-Stephens Co. .... 55¢ 65¢ 10%

**Glue, Liquid Fish—**

Bottles or Cans, with Brush ..... 25¢ 10¢ 50%

Elwell's ..... 40%

**Grease, Axle—**

Common Grade ..... gro. \$6.00 @ 6.50

Dixon's Everlasting, 10-lb pails, ea. \$5; in boxes, ½ doz., 1 B. \$1.20;  
2 B. .... \$2.00

Helmet Hard Oil ..... 25%

**Griddles, Soapstone—**

Pike Mfg. Co. .... 33½¢ 33½¢ 10%

**Grinders—**Royal Mfg. Co.:  
Aluminum Grinding Machines, each, No. 01, \$1.75; 1A, \$2.50; 10, \$5.00 ..... 30%

Aluminum Sickle Grinders, each, Nos. 20, \$5.00; 20A, \$6.00; 20A Combined, \$6.50 ..... 40%

Aluminum Disc Grinders, each, \$2.50 ..... 30%

**Grindstones—**Pike Mfg. Co.:  
Improved Family Grindstones, ½ inch, ½ doz., \$2.00 ..... 33½%

Richards Mfg. Co., Edit and Cycle Ball Bearing, mounted ..... 40%

**Grips, Nipple—**

Perfect Nipple Grips ..... 40¢ 10¢ 2%

**Halters and Ties—**Cow Ties ..... 60¢ 5¢ 60¢ 10%  
Covert Mfg. Co.:  
Web ..... 30¢ 2%  
Jute Rope ..... 25%  
Sisal Rope ..... 20%  
Cotton Rope ..... 40%  
Hemp Rope ..... 45%Oneida Community:  
Am. Coil and Halters ..... 40¢ 40¢ 5%  
Am. Cow Ties ..... 45¢ 60%  
Niagara Coil and Halters ..... 45¢ 50¢ 5%  
Niagara Cow Ties ..... 45¢ 50¢ 10¢ 5%**Hammers—**Handled Hammers—  
Heller's Machinists' ..... 55¢ 10¢ 55¢ 10% 5%  
Heller's Farriers' ..... 40¢ 50¢ 10% 5%  
Peck, Stow & Wilcox Co.:  
Crucible Steel ..... 50%  
Farriers' ..... 10¢ 10% 5%  
Riveting ..... 50%  
Machinists', revised list ..... 60% 5%  
Blacksmiths' ..... 50% 5%  
Fayette R. Plumb:  
A. E. Nail ..... 40¢ 2½¢ 40¢ 12½%  
Eng. and B. S. Hand ..... 50¢ 10¢ 50¢ 5%  
Machinists' Hammers ..... 60¢ 60% 10%  
Rivet and Timbers' ..... 40¢ 7½¢ 40¢ 12½% 5%**Heavy Hammers and Sledges—**Under 3 lb., per lb., 30¢ .80¢ 80¢ 5%  
3 to 5 lb., per lb., 40¢ .80¢ 80¢ 5%  
Over 5 lb., per lb., 50¢80¢ 10¢ 80¢ 10¢ 5%  
Wilkinson's Smiths' ..... lb. 9½¢ 10%**Handles—**Agricultural Tool Handles  
Ae, Pick, &c. .... 60¢ 10¢ 60¢ 10% 5%  
Hoe, Rake, &c. .... 40%Fork, Shovel, Spade, &c.:  
Long Handles ..... 40%  
D Handles ..... 40%**Cross-Cut Saw Handles—**Atkins ..... 40%  
Champion ..... 50%  
Diston's ..... 50%**Mechanics' Tool Handles—**Auger, assorted ..... gro. \$3.00 @ \$3.50  
Brad Axl. .... gro. \$1.65 @ \$1.75Chisel Handles, Ass'd, per gro.:  
Tanged Firmer, Apple, \$2.40 @ \$2.65; Hickory ..... \$2.15 @ \$2.40

Socket Firing, Apple, \$1.75 @ \$1.95; Hickory ..... \$1.60 @ \$1.75

Socket Framing, Hickory, \$1.60 @ \$1.75  
File, assorted ..... gro. \$1.30 @ \$1.40  
Hammer, Hatchet, &c. .... 60¢ 10¢ 60¢ 10% 5%Hand Saw, Varnished, doz. 80¢ 85¢; Not Varnished, &c. 65¢ 75¢  
Plane Handles:  
Jack, doz. 30¢; Jack, Bolted 75¢  
Fore, doz. 45¢; Fore, Bolted 90¢  
Chapin-Stephens Co.:  
Carving Tool ..... 30¢ 30¢ 10%  
Chisel ..... 60¢ 60¢ 10%  
File and Awl ..... 60¢ 60¢ 10%  
Saw and Plane ..... 30¢ 30¢ 10%  
Screw Driver ..... 30¢ 30¢ 10%  
Millers Falls Adj. and Ratchet Auger Handles ..... 15¢ 10%  
Nicholson Simplicity File Handle ..... ½ gro. \$0.85 @ \$1.50W. A. Zelnick Supply Co.:  
Hammer, doz. 12 in., \$2.00; 14 in., \$2.00; 16 in., \$2.30; 18 in., \$2.50; 20 in., \$2.70; 22 in., \$3.00; 24 in., \$3.30; 26 in., \$3.50; 30 in., \$3.80.  
Sledge, ½ doz., oval, 30 in., \$3.80; octagon, 30 in., \$3.80; oval, 36 in., \$4.00; octagon, 36 in., \$4.00.  
Axe, doz., 28 to 34 in., \$5.00; Adze, ¾ doz., 36 in., \$5.80; 36 in., \$7.80.  
Pick, ½ doz., R. R. 36 in., \$8.00; coal, 34 in., \$8.80.  
Hatchet, ½ doz., 12 to 14 in., \$2.00.**Hangers—**

NOTE.—Barn Door Hangers are generally quoted per pair, without track, and Parlor Door Hangers per double set with track, &amp;c.

Allth Mfg. Co.:  
Reliable, No. 1 and 2; Allth, No. 3; Allth Adjustable, No. 6; Reliable Parlor Door ..... 50%**Chicago Spring Butt Co.:—**Friction ..... 25%  
Oscillating ..... 25%  
Big Twin ..... 25%Chisholm & Moore Mfg. Co.:  
Baggage Car Door ..... 50%  
Elevator ..... 50%  
Railroad ..... 50%Cronk & Carrier Mfg. Co.:  
Loose Axle ..... 60% 2½%  
Roller Bearing ..... 70% 2½%Griffin Mfg. Co.:  
Solid Axle, No. 10, \$12.00, 60% 10%  
Roller Bearing, No. 11, \$15.00, 60% 10%Roller Bearing, Ex. Hy. No. 22, \$18.00, 60% 10%  
Bull Dog, \$24.00, 70%Lane Bros. Co.:  
Parlor, Ball Bearing, \$1.00; Standard, \$3.15; No. 105, \$2.85; New Model, \$2.80; New Champion, \$2.25  
Barn Door, Standard, 60% 10%  
Cyclone, No. 40, net \$6.50  
Covered ..... 60% 5%  
Special ..... 70% 5%Lawrence Bros.:  
Advance ..... 55¢ 10%  
Cleveland ..... 70% 7½%  
Clipper, No. 75 ..... 60%  
Crown ..... 55¢ 10%  
Hinged ..... net \$6.00  
Tandem, No. 50, net \$7.50  
New York ..... 55¢ 10%McKinney Mfg. Co.:  
Roller Bearing, Nos. 1 and 2, 70%  
Anti-Friction ..... 60%  
Hinged Hangers, King Charm, 60%  
Meyers' Stayon Hangers ..... 60%Richards Mfg. Co.:  
Hangers, Nos. 47, 48, 147, 247, \$2.40; No. 150, \$2.50  
Safety Underwriters F. D. No. 101 ..... 50%  
Tandem No. 41, 2½ and 3 60% 10%  
Palace, Adjustable Track No. 132 ..... 50% 5%  
Royal, Adjustable Track No. 132 ..... 50% 10%  
Ives Wood Track No. 1 ..... 25%  
Trolley B. D. No. 20 ..... \$2.25  
Trolley B. D. No. 24, \$1.30; No. 27, \$1.40; No. 28, \$1.60  
Roller Bearings, Nos. 37, 38, 39, 41, 43, 44, Sizes 1 and 2, 70% 7½%  
Anti-friction, No. 42; No. 44, size 2½ and 3, 60%  
Hinged Tandem No. 48, 60% 5%  
Folding Door B. B. Swivel No. 135 ..... 40%  
Taylor & Boggs F'y Co.'s Kidder's Roller Bearing, 50% 15% 10% 5%**Hangers— Garment—**Pollman Trouser, ½ gro. 1 pair Flat Aluminum, \$9.00; 1 pair Round Nickle, \$9.00; 4 pair Round Nickle, \$27.00; 1 pair Flat Gun Metal, \$12.00; 1 pair Flat Black Enamelled, \$7.50; 1 pair Wood Clamp, \$15.50; Skirt Hangers, Folding, per gro., \$21.00; Coat Hangers, Folding, per gro., \$8.00; Garment Hanger Rods, Round Nickle, per gro., \$10.50; Garment Hanger Loops, Round Nickle, per gro., \$10.50  
Victor Folding ..... ½ gro. \$9.50**Gate—**

Myers' Patent Gate Hangers, ½ doz. net ..... \$4.50

**Joist and Timber—**

Lane Bros. Co. .... 30%

**Hasps—**Griffin's Security Hasp ..... 50% 10%  
McKinney's Perfect Hasp, ½ doz. 60%**Hatchets—**Regular list, first qual. 40¢ 4½¢ @—  
Second quality ..... 30¢ 10¢ @—**Heaters, Carriage—**Clark, No. 5 \$1.75; No. 5B, \$2.00; No. 3, \$2.25; No. 3D, \$2.75; No. 7D, \$3.00; No. 3E, \$3.25; No. 1, \$3.50 ..... 25%  
Clark Coal, ½ doz., \$0.75 ..... 20%**Hinges—**Blind and Shutter Hinges  
Surface Gravity Locking Blind: (Victor; National; 1868 O. P.; Niagara; Clark's O. P.; Clark's Tip; Buffalo.)  
No. .... 1 3 5  
Doz. pair ..... \$0.75 1.35 2.70Mortise Shutter: (L. & P. O. S., Dixie, &c.)  
No. .... 1 1½ 2  
Doz. pair ..... \$0.70 .65 .60 .55Mortise Reversible Shutter (Buffalo, &c.):  
No. .... 1 1½ 2  
Doz. pair ..... \$0.70 .65 .60North's Automatic Blind Fittings, No. 2, for Wood, \$9.00; No. 3, for Brick, \$11.50 ..... 10%  
Charles Parker Co. .... 70¢ 75%Parker Wire Goods Co.:  
Hale & Benjamin Automatic Blind Hinges ..... 20%

Hale's Blind Awning Hinges, No. 110, for wood, \$9.00; No. 111, for brick, \$9.00 ..... 20%

Reading's Gravity ..... 60%

Stanley's Steel Gravity Blind Hinges, No. 167½, ½ doz. sets, without screws, \$0.35; with screws, \$1.25.

Wrightsville Hardware Co.:  
O. S., Lull & Porter ..... 75% 5%  
Acme, Lull & Porter ..... 75%  
Queen City Reversible ..... 75%  
Shepard's Noiseless, Nos. 60, 65, 55 ..... 75% 5%  
Niagara Gravity Locking, Nos. 1, 3 & 5 ..... 75% 5%  
Tip Pat'n, No. 1 ..... 75% 10%  
No. 3 ..... 75% 5%  
Buffalo Gravity Locking, Nos. 1, 3 & 5 ..... 70% 10% 5%  
Shepard's Double Locking ..... 75%  
Champion Gravity Locking ..... 75% 5%  
Pioneer ..... 75% 10%  
Empire ..... 65%  
W. H. Co.'s Mortise Gravity Locking, No. 2 ..... 60% 10%**Gate Hinges—**Clark's or Shepard's—Doz. sets:  
No. .... 1 2 3  
Hinges with L'ths. \$2.00 2.70 5.00  
Hinges only ..... 1.40 2.05 3.80  
Latches only ..... 70 70 35New England:  
With Latch ..... doz. .... @ \$2.00  
Without Latch ..... doz. .... @ \$1.60Reversible Self-Closing:  
With Latch ..... doz. .... @ \$1.75  
Without Latch ..... doz. .... @ \$1.35Western:  
With Latch ..... doz. .... \$1.75  
Without Latch ..... doz. .... \$1.15Wrightsville Hardware Co.:  
Shepard's or Clark's Hinges and Latches, Hinges only or Latches only, Nos. 1, 2 or 3 ..... 70%**Pivot Hinges—**

Bommer Bros. Pivot ..... 40%

Lawson Mfg. Co. Matchless ..... 50%

**Spring Hinges—**Holdback, Cast Iron ..... \$6.75 @ \$7.00  
Non-Holdback, Cast Iron \$6.50 @ \$6.75J. Bardsley:  
Bardsley's Non-Checking Mortise Floor Hinges ..... 40%  
Bardsley's Patent Checking ..... 33½%  
Bommer Bros.:  
Bommer Ball Bearing Floor, 40%  
Bommer Spring Hinges ..... 40%  
No. 999 Wrot, Steel Hold Back, gr. \$9.00Chicago Spring Butt Co.:  
Chicago Spring Hinges ..... 25%  
Triple End Spring Hinges ..... 50%  
Chicago (Ball Bearing) Floor, 50%  
Garden City Engine House ..... 25%  
Keene's Saloon Door ..... 25%  
Columbian Hardware Co.:  
Acme Wrought Steel ..... 30%  
Acme, Brass ..... 25%  
American ..... 30%  
Columbia, ½ gr., No. 14, \$9.00; No. 18, \$25.00  
Columbia, Adj. No. 7, ½ gr. \$12.00  
Columbian Hinges ..... 50% 10%  
Gem, new list ..... 30%  
Clover Leaf ..... ½ gr. \$12.00  
Oxford, new list ..... 30%  
Floor Spring Hinges ..... 65% 10%  
Lawson Mfg. Co. Matchless ..... 30%  
Richards Mfg. Co.:  
Superior Double Acting Floor Hinges ..... 40%  
Shelby Spring Hinge Co.:  
Buckeye All Steel Holdback Screen Door ..... ½ gr. \$9.00  
Chief Ball Bearing Floor Hinge ..... 50%  
Ball Bearing Door ..... 25%  
No. 777, Sheet Steel Hold Back, ½ gr. pr. .... \$9.00  
Superior Spring Hinge Co.:  
Superior Floor Hinges ..... 33½%**Wrought Iron Hinges—**

Strap and T Hinges, &amp;c., List December 20, 1904:

Light Strap Hinges, 50¢ 10%  
Heavy Strap Hinges, 60¢ 10%  
Light T Hinges ..... 50%  
Heavy T Hinges ..... 40%  
Extra Heavy T Hinges, 30¢ 10%  
Hinge Hasps ..... 33½%  
Cor. Heavy Strap ..... 60% 5%  
Cor. Ex. Heavy T ..... 50¢ 10%Screw Hook and Eye:  
¾ to 1 inch ..... lb. 6½¢  
1 to 1½ inch ..... lb. 7½¢  
1½ to 2 inch ..... lb. 8½¢**Hitchers, Stall—**

Covert Mfg. Co., Stall Hitchers, 30¢ 2%

**Hods— Coal—**

M'Far's list, price per gross.

Inch ..... 15 16 17 18

Galv. Open ..... \$35 \$39 \$32 \$16

Jap. Open ..... 26 28 31 35

Galv. Funnel, 15 18 52 56

Jap. Funnel, 3 36 39 43

**Massey's Etc.—**Cleveland Wire Spring Co.:  
Steel Brick, No. 162 ..... each \$1.05  
Steel Mortar, No. 158 ..... each \$1.35**Hoes— Eye—**Scovill and Oval Pattern ..... 60¢ 10¢ 40¢ 10¢ 10%  
Grub, list Feb. 23, 1899 ..... 4¢ 10¢ 75¢ 10%

Extra 10% often given.

Extra 10% often given on most of these Hinges.

D. & H. Scovill.....27½%  
Am. Fork & Hoe Co. (Scovill Pat-  
tern).....60%

**Handled—**

*NOTE.—Manufacturers are selling from the list of September 1, 1904, but many jobbers are still using list of August 1, 1906, or selling at net prices.*

Cronk's Weeding, No. 1, \$2.00; No. 2, \$2.50  
Star Double Bit.....\$2.20  
Ft. Madison Cotton Hoe.....\$2.00  
Ft. Madison Crescent Cultivator Hoe, 70&10%  
doz.....70&10%  
Ft. Madison Mattock Hoes:  
Regular Weight.....doz. 40&5%  
Junior Size.....doz. \$1.00  
Ft. Madison Sprouting Hoe, 70&10%  
doz.....60&10%  
Ft. Madison Dixie Tobacco Hoe.....75&10&7½%  
Kretzinger's Cut Easy.....70&10%  
Warren Hoe.....45&10%  
W. B. C. Iron Hoe.....\$2.50  
B. B. C. in. Cultivator Hoe.....\$3.40  
B. B. C. 6½ in. ....\$3.50  
Acme Wedding.....doz. net, \$4.35  
W. & C. L. Tinning Shovel Hoe, 70&10%  
doz.....\$5.25

**Hoisting Apparatus—**  
*See Machines, Hoisting.***Holders—Bit—**

Angular, ½ doz. \$24.00.....45&10%  
**Door—**  
Bardsley's, Iron, 40%; Brass and  
Bronze.....25%  
Empire.....50%  
Pullman.....35%  
Richards Mfg. Co., No. 117, Ever-  
ready, 40%; Nos. 118, 119, Sure  
Grip.....50%  
Superior.....33½%

**File and Tool—**

Nicholson File Holders and File  
Handles.....33½&40%

**Fruit Jar—**

Triumph Fruit Jar Holder, ½ gross,  
\$10.80; doz.....\$1.25

**Trace and Rein—**

Fernald Double Trace Holder, ½ doz.  
pairs.....\$1.25  
Dash Rein Holder, ½ doz. pairs, \$1.25

**Hones—Razor—**

Pike Mfg. Co., Belgian and Swat,  
50%; German.....33½%

**Hooks—Cast Iron—**

Bird Cage, Reading.....40%  
Clothes Line, Reading List.....40%  
Coat and Hat, Reading.....45&20%  
Coat and Hat, Wrightsville.....60&5%  
Harness, Reading List.....40%

**Wire—**

Belt.....80%  
Wire C. & H. Hoes, 70&10 to 75%  
Bradley Metal Clasp Wire, Coat and  
Hat, 70&10%; Ceiling.....70&10%  
Columbian Hd. Co., Gem.....70&5%  
Parker Wire Goods Co., King, 70&10%  
Wire Goods Co.:  
Acme, 60&10%; Chief, 70%; Crown,  
75%; Clear, 65%; Brace, 75%;  
Clear Harness, 50&10%.

**Wrought Iron—**

Box, 6 in., per doz., \$1.00; 8 in.,  
\$1.25; 10 in., \$1.50; doz. \$1.03 to \$1.25  
Cotton.....doz. \$1.03 to \$1.25  
Wrought Staples, Hooks, &c.—  
See Wrought Goods.

**Miscellaneous—**

Bush, Bench, see Staps, Bench.  
Bush, Light, doz., \$6.20; Medium,  
\$6.75; Heavy, \$7.65  
Grass, best, all sizes, per doz. \$3.00  
Grass, common grades, all sizes,  
per doz.....\$1.75  
Whiffletree.....lb. 5½¢ to 4¢  
**Hooks and Eyes:**  
Brass.....60¢ to 60¢ to 10¢  
Malleable Iron.....70¢ to 70¢ to 10¢  
Cortez Mfg. Co. Gate and Scuttle  
Hooks.....40%  
Ft. Madison Cut-Easy Corn Hooks,  
Turner & Stanton Co. Cap and  
Shoulder.....50&10%  
Bench L. Cap and Shoulder.....50%  
Corn Hooks—See Knives, Corn.

**Horse Nails—**

See Nails, Horse.

**Horseshoes—**

See Shoes, Horse.

**Hose, Rubber—**

Garden Hose, ½-in.:  
Competition.....ft. 5 @ 9¢  
3-ply Guaranteed, ft. 8 @ 9¢  
4-ply Guaranteed, ft. 10 @ 11¢  
Cotton Garden, ¾-in., coupled:  
Low Grade.....ft. 8 @ 9¢  
Fair Quality.....ft. 10 @ 11¢  
**Irons—Sad—**  
From 4 to 10.....lb. 3 @ 3½¢  
B. B. Sad Irons.....lb. 3½¢ to 3½¢  
Mrs. Potts', cents per set:  
Nos. 60 55 60 65  
Jap'd Tops.....85 80 93 91  
Tin'd Tops.....85 85 98 95  
New England Pressing, lb. 3½¢ to 4¢

**Bar and Corner—**

Richards Mfg. Co., Bar, 60&10%;  
Corner.....60%

**Pinking—**

Pinking Irons.....doz. 60¢

**Irons, Soldering**

See Copiers.

**Jacks, Wagon—**

Covert Mfg. Co.:  
Auto Screw.....30&2%; Steel, 45%  
Lockport.....60%

Lane's Steel.....30&5%  
Richards' Tiger Steel, No. 130.....50&10%  
Smith & Hemenway Co.'s.....25%

**Ladder—**

Richards Mfg. Co., Ladder Jacks.....50%

**Kettles—**

Brass, Spun, Plain.....\$20 to \$25%  
Enameled and Cast Iron—See Ware,  
Hollow.

**Knives—**

Butcher, Kitchen, &c.—  
Foster Bros.' Butcher, &c.....30%  
Wilkinson Shear & Cutlery Co.....60%

**Corn—**

Columbian Cutlery Co., Wilcut  
Brand Knives and Hooks.....60%  
Withington Acme, ½ doz., \$2.65;  
Dent, \$2.75; Adj. Serrated, \$2.20;  
Serrated, \$2.10; Yankee No. 1, \$1.80;  
Yankee No. 2, \$1.15.

**Drawing—**

Standard List.....75&5 to 75&10%  
C. E. Jennings & Co., Nos. 45, 46,  
25&7½%  
Jennings & Griffin, Nos. 41, 42,  
66&7½%  
Swan's.....66&7½%  
Myers' Noiseless Works.....16%  
L. & I. J. White.....20&5 to 25%

**Hay and Straw—**

Serrated Edge, per doz. \$3.50 to \$5.75  
Iwan's Sickle Edge.....doz. \$3.50  
Iwan's Serrated.....doz. \$10.00

**Miscellaneous—**

Farriers'.....doz. \$3.00 to \$3.85  
Westenholm's.....doz. \$3.00 to \$3.25

**Knobs—**

Base, 2½-in., Birch, or Maple,  
Rubber Tip.....gro. \$1.25 to \$1.40  
Carriage, Jap., all sizes.....

Door, Mineral.....gro. 40¢ to 45¢  
Door, Por. Jap'd.....doz. 70¢ to 75¢  
Door, Por. Nickel.....doz. \$2.03 to \$2.15  
Bardsley's Wood Door, Shutters, &c. 15%

**Lacing, Leather—**

See Belting, Leather.

**Ladders, Store, &c.—**

Allith Mfg. Co., Reliable.....50%  
Lane's Store.....25%  
Myers' Noiseless Store Ladders.....45%  
Richards Mfg. Co.:  
Improved Noiseless, No. 112.....50%  
Climax Shelf, No. 113.....50%  
Trolley, No. 109.....50%

**Ladles, Melting—**

L. & G. Mfg. Co. (low list).....20%  
P. S. & W.....40&10%  
Reading.....60%

**Lanterns—Tubular—**

Regular, No. 0.....doz. \$4.35 to \$4.50  
Side Light, No. 0.....doz. \$4.60 to \$4.75  
Hinge Globe, No. 0.....doz. \$4.80 to \$4.75  
Other Styles.....40¢ to 40¢ to 10%

**Bull's Eye Police—**

3-inch.....\$4.25 to \$4.50

**Latches—Thumb—**

Roggin's Latches, with screw.....doz. 35¢ to 40¢

**Door—**

Allith Mfg. Co., Reliable and Allegator,  
50%; Reliable Cold Storage.....50%  
Cronk & Carrier Mfg. Co., No. 101,  
doz. \$2.30  
Richards' Bull Dog, Heavy, No. 125,  
doz. \$0.45 to \$0.55  
Richards' Trump, No. 127.....\$1.50

**Leaders, Cattle—**

Small.....doz. 60¢; large, 80¢  
Covert Mfg. Co.:  
Cotton, 45%; Hemp, 45%; Jute, 35%;  
Sisal, 20%.

**Leathers, Pump—**

See Pumps.

**Lifters, Transom—**

R. & E.....10%

**Lines—**

Wire Clothes, Nos. 19 19 80  
10¢ feet.....\$2.50 2.25 2.00  
7½ feet.....\$1.75 1.55 1.10

Lantern Cordage Works:  
Solid Braided Chalk, Nos. 0 to 3, 40%  
Solid Braided Masons'.....30%  
Silver Lake Braided Chalk, No. 0,  
\$6.00; No. 1, \$6.50; No. 2, \$7.00; No. 3,  
\$7.50.....per 50%  
Masons' Lines, Shade Cord, &c.:  
White Cotton, No. 3½, \$1.50; No. 4,  
\$2.00; No. 4½, \$2.50; Colors, No. 3½,  
\$1.75; No. 4, \$2.25; No. 4½, \$2.75;  
Linen, No. 3½, \$2.50; No. 4, \$3.50;  
No. 4½, \$4.50.....20%  
Tent and Awning Lines: No. 5,  
White Cotton, \$7.50; Draw Cotton,  
\$8.50.....20%  
Clothes Lines, White Cotton: 50 ft.,  
\$2.75; 60 ft., \$3.25; 70 ft., \$3.75; 75  
ft., \$4.00; 80 ft., \$4.25; 90 ft., \$4.75;  
120 ft., \$5.25.....20%  
Turner & Stanton Co.:  
Solid Braided Chalk, Masons' and  
Awning Lines.....40%  
Clothes Lines, White Cotton.....20%  
Shade Cord, Cotton or Linen.....20%

**Locks—Cabinet—**

Cabinet Locks.....33½%  
**Door Locks, Latches, &c.—**  
*NOTE.—Set Prices are very often made on these goods.*

Reading Hardware Co.....40%  
R. & E. Mfg. Co.....10%

**Padlocks—**

R. & E. Mfg. Co. Wrought Steel and  
Brass.....75&10%

**Sash, &c.—**

Ives' Patent:  
Bronze and Brass, 55&5%; Crescent,  
60%; Iron, 60%; Window Ventilating,  
40&20%; Robinson Pat. Ventilating  
Sash Lock, 33½%.

Pullman Patent Ventilating Lock.....35%  
Reading Sash Locks.....30%

**Machines—Boring—**

Com. Up't, without Augers.....\$2.00 to \$2.25

Com. Ang'l'r, without Augers.....\$2.25 to \$2.50

Swan's Improved.....40&10%  
Jennings', Nos. 1 and 4.....25&7½%  
Millers' Pails.....5.75

Snell's, Upright, \$2.65; Angular, \$2.90

**Corking—**

Reisinger Invinible Hand Power.....doz. \$18.00

**Fence—**

Williams' Fence Machines.....each, \$5.50

**Hoisting—**

Moore's Anti-Friction Chain Hoist.....30%  
Moore's Hand Hoist, with Lock  
Brake.....20%  
Moore's Cyclone High Speed Chain  
Hoist.....25%

**Ice Cutting—**

Chandler's.....12½%

**Washing**

Boss Washing Machine Co.: Per doz.  
Boss No. 1.....\$57.00  
Boss Rotary.....\$57.00  
Champion Rotary Banner No. 1.....\$57.00  
Standard Champion No. 1.....\$57.00  
Standard Perfection.....\$57.00  
Cincinnati Square Western.....\$57.00  
Uneda American, Round.....\$57.00

**Mallets—**

Hickory.....45&5 to 50%  
Lignumvitae.....45&5 to 50%  
Tinnors' Hickory and Apple  
wood.....doz. 45&5 to 50%

**Mangers, Stable—**

Swett Iron Works.....50%

**Mats, Door—**

Elastic Steel (W. G. Co.), new list.....50%  
Keystone Wire Matting Co.:  
Keystone.....50%  
Ideal.....50%

**Mattocks—**

See Picks and Mattocks.

**Milk Cans—See Cans, Milk.****Mills, Coffee, &c.—**

Enterprise Mfg. Co.....20 to 25%  
National list Jan. 1, 1902.....25%  
Parker's Columbia and Victoria.....33½%  
Parker's Box and Side.....50&10%  
Swift, Lane Bros. Co.....30%

**Motors Water—**

Divine's Red Devil.....30%

**Mowers, Lawn—**

*NOTE.—Net prices are generally quoted*  
*Cheapest.....all sizes, \$1.85 to \$2.00*  
*Cheap.....all sizes, \$2.00 to \$2.50*  
*Better Grade.....all sizes, \$2.50 to \$4.50*  
12 14 16 18 in.

High Grade.....\$4.50 4.75 5.00 5.25

Continental.....60%  
Great American.....70%  
Great American Ball B'r'g, new list.....70%  
Quaker City.....70%  
Pennsylvania.....50%  
Pennsylvania, Jr., Ball Bearing,  
50&10&5%  
Pennsylvania Golf.....50%  
Pennsylvania Horse.....50%  
Pennsylvania Pony.....40&5%

Style A, Low Wheel.....70&10%  
Style B, Low Wheel.....70&5%  
Style C, High Wheel, spec. disct.,  
70&10%  
Style D, High Wheel, spec. disct.,  
70&10%

Philadelphia:  
Style M, S. C. K. T.....70&10&5%  
Style A, all Steel.....60&10&5%  
Style E, High Wheel.....60&10&5%  
Drexel and Gold Coin, special list.....40%  
Horse.....40&5%  
Pony.....40&5%  
36-in. Horse.....30&10%  
Eagle Horse.....30&5%  
I. X. L. Horse.....50%

**Nails—**  
Wire Nails and Brads, Miscel-  
laneous.....87½ to 87½ to 10%  
Cut and Wire. See Trade Report.  
Hungarian, Finishing, Upholster-  
ers' &c. See Tacks.

**Horse—**

Anchor.....Nos. 6 7 8 9 10.....40&5%  
Coleman.....13 12 12 11 11.....net  
New Haven.....23 21 20 19 18.....40&5%  
Livingston.....19 18 17 16 16.....10%  
Western.....doz. 8½¢  
Jobbers' Special Brands.....per lb. 9¢ to 10¢

**Picture—**

Brass H'd.....\$5 60 70 70 70  
Por. Head.....1.10 1.10 1.10 1.10 1.10

**Nippers—**

See Pliers and Nippers.

**Nuts—**

Cold Punched: Off list.  
Square, Blank or Tapped.....\$4.00  
Hexagon, Blank or Tapped.....\$5.00  
Square, B'k. C. T. & R.....\$5.00  
Hexagon, B'k. C. T. & R.....\$5.00  
Hot Pressed:  
Square, Blank.....\$5.00  
Hexagon, Blank.....\$5.00  
Square, Tapped.....\$4.70  
Hexagon, Tapped.....\$6.10

**Oakum—**

Rest.....lb. 6½¢  
U. S. Navy.....lb. 6¢  
Navy.....lb. 5¢  
Plumbers' Spun Oakum.....3½¢  
In carload lots ¼¢ lb 7¢ f.o.b.  
New York.

**Oil Tanks—See Tanks, Oil.****Oilers—**

Brass and Copper.....50&10%  
Tin or Steel.....65&10&5 to 70%  
Zinc.....65&10&5 to 70%

Chase or Paragon:  
Brass and Copper.....50&10%  
Tin or Steel.....65&10%  
Zinc.....65&10%  
Malleable, Hammers' Improved, Nos.  
11, 12 and 13, 20%; Old Pattern, Nos.  
1, 2, 3, 50%.

American Tube & Stamping Co.:  
Spring Bottom Cans.....70&70&10%  
Railroad Oilers, &c.....80&60&10%

**Openers—Can—Per doz.**  
Sprague, Iron Handle.....\$3.35  
Sprague, Wood Handle.....\$3.40  
Sardine Scissors.....\$1.75 to \$3.00  
Yankee Can and Bottle Opener,  
½ doz., net, \$0.75; Little Gem,  
½ doz., net.....\$0.65

**Egg—**

Hartigan Nickel Plate, ½ doz., \$2.00;  
Silver Plate, \$4.00.

**Packing—**

Asbestos Packing, Wick and  
Rope.....20 to 25¢

**Rubber—**

(Fair quality goods.)  
Sheet, C. I.....11¢ to 12¢  
Sheet, C. O. S.....11¢ to 12¢  
Sheet, C. B. S.....12¢ to 13¢  
Sheet, Pure Gum.....40¢ to 45¢  
Sheet, Red.....40¢ to 50¢  
Jenkins' 76, ½ lb. 80¢.....25%

**Miscellaneous—**

American Packing.....lb. 7¢ to 10¢  
Cotton Packing.....lb. 16¢ to 25¢  
Italian Packing.....lb. 9¢ to 12½¢  
Jute.....lb. 4½¢ to 4½¢  
Russia Packing.....lb. 8¢ to 11¢

**Pails, Water, Well, &c.—**

See Buckets.

**Pans—Dripping—**

Standard List.....65&7½ to 70%  
Edwards, Royal Blue.....65&7½%

**Fry—**

Common Lipped:  
Nos. 1 2 3 4 5  
Per doz. \$0.75 0.80 0.90 1.10 1.30

**Refrigerator, Galva—**

Inch.....12 14 16 18  
Per doz.....\$1.75 2.25 2.80 3.15

**Paper—Building Paper**

Asbestos.....lb.  
Roll Board or Building Felt,  
6 to 30 lb., per 100 sq. ft. 3½¢ to 5¢  
Roll Board or Building Felt,  
3-32 and ¼ in., 45 to 60 lb.,  
per 100 sq. ft. 4¢ to 6¢  
Mill Board, Sheet, 40 x 40 in.,  
1-32 to ½ in. ....3¢ to 5¢

**Roofing Sizing Sheathing: 500 sq. ft.**

Light weight, 25 lbs. to roll  
40¢ to 50¢  
Medium weight, 30 lbs. to roll,  
50¢ to 55¢  
Heavy weight, 40 lbs. to roll,  
65¢ to 70¢

Black Water Proof Sheathing,  
500 sq. ft., 1 ply, 65¢; 2 ply,  
85¢; 3 ply, \$1.10; 4 ply, \$1.25.  
Deafening Felt, 9, 6 and 4½ sq.  
ft. to lb. ton.....\$50.00  
Red Rope Roofing, 250 sq. ft.  
per roll.....\$1.75

**Tarred Paper—**

1 ply (roll 400 sq. ft.), ton.....\$34.00 to \$38.00  
2 ply, roll 108 sq. ft. ....65¢  
3 ply, roll 108 sq. ft. ....95¢  
Slater's Felt (roll 500 sq. ft.), 75¢

**Sand and Emery—**

Flint Paper and Cloth.....50¢ to 10¢  
Garnet Paper and Cloth.....25¢  
Emery Paper and Cloth.....50¢ to 60¢

**Parers—Apple—**

Goodell Co.:  
Family Bay State.....doz. \$15.00  
Improved Bay State.....doz. \$36.00  
New Lightning.....doz. \$7.00  
Turn Table.....doz. \$6.00  
White Mountain.....doz. \$5.00  
Bonanza Improved.....each \$7.50  
Dandy.....each \$10.00  
Eureka Improved.....each \$20.00  
New Century.....each \$20.00  
Ranger.....each \$25.00  
Livingston Nail Co.:  
Daisy.....doz. \$1.00  
Little Star.....doz. \$5.00  
Rocking Table.....doz. \$6.25  
Reading Hardware Co.:  
Advance.....doz. \$4.00  
Baldwin.....doz. \$4.00  
Reading 72.....doz. \$3.25  
Reading 78.....doz. \$6.25

**Potato—**

S



**Pinking Irons—**See *Irons, Pinking.***Pins, Escutcheon—**

Brass ..... 50¢ @ 50¢ 10%  
 Iron, list Nov. 11, '85. 60¢ @ 60¢ 10%

**Pipe, Cast Iron Soil—**

Standard, 2-6 in. .... 50%  
 Extra Heavy, 2-6 in. .... 60%  
 Fittings, Stand. and H'vy. .... 70%

**Pipe, Merchant—**

Consumers, Carloads.

Steel. Iron.

Blk. Galv. Blk. Galv.

|                       | Steel | Iron |
|-----------------------|-------|------|
| 1/4 & 1/2 in. .... 61 | 57    | 41   |
| 3/8 in. .... 66       | 52    | 39   |
| 1/2 in. .... 68       | 56    | 41   |
| 3/4 in. .... 72       | 62    | 49   |
| 1 to 6 in. .... 72    | 66    | 56   |
| 7 to 12 in. .... 69   | 61    | 46   |

**Pipe, Vitrified Sewer—**

Carload lots.

Standard Pipe and Fittings, 3  
 to 24 in., f.o.b. factory:  
 First-class ..... 82%  
 Second-class ..... 85%  
 NOTE.—Market irregular.

**Pipe, Stove—**

|                                    | Per 100 joints. |
|------------------------------------|-----------------|
| Edwards' Nested: C. L. L. C. L.    |                 |
| 5 in., Standard Blue.....          | \$6.25          |
| 6 in., Standard Blue.....          | 6.75            |
| 7 in., Standard Blue.....          | 7.75            |
| 5 in., Royal Blue.....             | 7.00            |
| 6 in., Royal Blue.....             | 7.50            |
| 7 in., Royal Blue.....             | 8.50            |
| Wheeling Corrugating Co.'s Nested: |                 |
| 5 in., Uniform Color.....          | \$6.15          |
| 6 in., Uniform Color.....          | 6.65            |
| 7 in., Uniform Color.....          | 7.65            |

**Planes and Plane Irons—****Wood Planes—**

Bench, first qual. .... 30¢ @ 30¢ 10%  
 Bench, second qual. .... 25¢ @ 25¢ 10%  
 Molding ..... 25¢ @ 25¢ 10%  
 Chapin-Stephens Co.:  
 Bench, First Quality..... 30%  
 Bench, Second Quality..... 25%  
 Molding and Miscellaneous..... 25%  
 Toy and German..... 30%  
 Union ..... 60%

**Iron Planes—**

Chapin's Iron Planes..... 50¢ 10%  
 Union ..... 60%

**Plane Irons—**

Wood Bench Plane Irons, list  
 Dec. 12, '06. .... 25%  
 Buck Bros. .... 30%  
 Chapin-Stephens Co. .... 25%  
 Union ..... 60%  
 L. & I. J. White ..... 30% 10%

**Planters, Corn, Hand—**

Kohler's Eclipse..... 1/2 doz. \$8.00

**Plates—**

Fellce ..... 1/2 lb. 4¢ @ 4¢ 4

**Pliers and Nippers—**

Button Pliers..... 75¢ @ 75¢ 10%  
 Gas Burner, per doz., 5 in., \$1.25  
 @ \$1.30; 6 in., \$1.45 @ \$1.50.  
 Gas Pipe..... 7 8 10 12-in.  
 \$2.00 \$2.25 \$2.75 \$3.50

Acme Nippers..... 50¢ 10%  
 Cronk & Carrier Mfg. Co.:  
 American Button..... 80%  
 Improved Button..... 75¢ 10%  
 Cronk's ..... 60%  
 No. 80 Linemen's..... 50%  
 Stub's Pattern..... 45%  
 Combination and others..... 33%  
 Heller's Farmers' Nippers, Pincers  
 and Tools..... 40¢ 10%  
 P. S. & W. Timmers' Cutting Nip-  
 pers ..... 40%  
 Wm. Schollhorn Co.:  
 Bernard, 35%; Elm City, 35%;  
 Paragon, 50%; Lodi, 55%  
 Swedish Side, End and Diagonal Cut-  
 ting Pliers..... 50%  
 Utica Drop Forge & Tool Co.:  
 Pliers and Nippers, all kinds..... 40%

**Plumbs and Levels—**

Chapin-Stephens Co.:  
 Plumbs and Levels..... 30¢ @ 30¢ 10%  
 Chapin's Imp. Brass Cor. 40¢ @ 40¢ 10%  
 Pocket Levels..... 30¢ @ 30¢ 10%  
 Extension Sights..... 30¢ @ 30¢ 10%  
 Machinists' Levels..... 40¢ @ 40¢ 10%  
 Diston's Plumbs and Levels..... 60¢ 10%  
 Diston's Pocket Levels..... 60¢ 10%  
 Stanley's Duplex..... 30%  
 Woods' Extension..... 35%

**Points, Glaziers—**

Bulk and 1-lb. papers..... 1/2 lb. 10¢  
 1/2-lb. papers..... 1/2 lb. 10¢  
 1/4-lb. papers..... 1/2 lb. 11¢

**Police Goods—**

Manufacturers' Lists..... 25¢ @ 25¢ 10%  
 Tower's ..... 25%

**Polish—Metal, Etc—**

Prestoline Liquid, No. 1 (1/4 pt.). 1/2  
 doz. \$3.00; No. 2 (1 qt.), \$9.00. 40%  
 Prestoline Paste..... 60%

George William Hoffman:  
 U. S. Metal Polish Paste, 3 oz.  
 boxes, 1/2 doz. 50¢; 1/2 doz. \$4.50;  
 1 lb boxes, 1/2 doz. \$1.25; 1 lb  
 boxes, 1/2 doz. \$2.25.  
 U. S. Liquid, 8 oz. cans, 1/2 doz.,  
 \$1.25.  
 Barkeepers' Friend Metal Polish, 1/2  
 doz., \$1.75.

**Stove—**

Black Eagle Benzine Paste, 5 lb cans,  
 1/2 lb 10¢  
 Black Eagle, Liquid, 1/2 pt. cans,  
 1/2 doz. 75¢  
 Black Jack Paste, 1/2 lb cans, 1/2 gr. \$9.00  
 Black Kid Paste, 5 lb cans, each, \$0.65  
 Ladd's Black Beauty Liquid, per  
 100 tins..... \$6.75  
 Joseph Dixon's, 1/2 gr. \$5.75..... 10%  
 Dixon's Plumbago, 1/2 lb 8¢  
 Firestone, 1/2 gr. \$2.50  
 Gem, 1/2 gr. \$4.50..... 10%  
 Japanese, 1/2 gr. \$3.50  
 Jet Black, 1/2 gr. \$3.50  
 Peerless Iron Enamel, 10 oz. cans,  
 1/2 doz. \$1.50

**Poppers, Corn—**

1 qt. Square. doz. \$0.88; gro. \$8.75  
 1 qt. Round. doz. \$1.00; gro. \$10.00  
 1 1/2 qt. Square. doz. \$1.10; gro. \$11.00  
 2 qt. Square. doz. \$1.35; gro. \$13.50

**Post Hole and Tree Au-  
g-ers and Diggers—**See also *Diggers, Post Hole, &c.***Posts, Steel—**

Steel Fence Posts, each, 5 ft., 42¢;  
 6 ft., 46¢; 8 ft., 48¢.  
 Steel Hitching Posts..... each \$1.30

**Potato Parers—**See *Parers, Potato.***Pots, Glue—**

Enameled ..... 35¢ 10%  
 Tinned ..... 30¢ 10%

**Powder—**

In Canisters:  
 Duck, 1 lb. .... each 45¢  
 Fine Sporting, 1 lb. .... each 75¢  
 Rifle, 1/2 lb. .... each 25¢  
 Rifle, 1 lb. .... each 25¢  
 In Kegs:  
 12 1/2-lb. kegs. .... \$3.50  
 25-lb. kegs. .... \$4.50  
 King's Semi-Smokeless:  
 Keg (25 lb bulk)..... \$6.50  
 Half Keg (12 1/2 lb bulk)..... \$3.50  
 Quarter Keg (6 1/4 lb bulk)..... \$1.90  
 Case 24 (1 lb cans bulk)..... \$3.50  
 Half case (1 lb cans bulk)..... \$4.50  
 King's Smokeless:  
 Keg (25 lb bulk)..... \$12.00  
 Half Keg (12 1/2 lb bulk)..... 6.25  
 Quarter Keg (6 1/4 lb bulk)..... 3.25  
 Case 24 (1 lb cans bulk)..... 14.00  
 Half case 12 (1 lb c. bk.)..... 7.25

**Presses—****Fruit and Jelly—**

Enterprise Mfg. Co. .... 20¢ 25%

**Seal Presses—**

Morrill's No. 1, 1/2 doz., \$20.00..... 50%

**Pruning Hooks and Shears**See *Shears.***Pullers, Nail—**

Cyclops ..... 50%  
 Muller's Falls, No. 3, 1/2 doz., \$12.00..... 33% 10%  
 Morrill's No. 1, Nail Puller, 1/2 doz.,  
 \$25.00 ..... 50%  
 Pearson No. 1, Cyclone Spike Puller,  
 each \$30.00..... 50%  
 The Scranton Co. Case Lots:  
 No. 2B (large)..... \$5.50  
 No. 3B (small)..... \$5.00  
 Smith & Hemenway Co.:  
 Diamond B..... 70%  
 Giant ..... 50%  
 Staple Pullers, Utica and Davi-  
 son ..... 60%

**Pulleys, Single Wheel—**

| Inch   | 1 1/2  | 1 3/4 | 2     | 3     |
|--|--------|-------|-------|-------|
| Avon or Tackle,<br>doz. ....   | \$0.30 | .45   | .60   | 1.05  |
| Hay Fork, Swivel or Solid Eye,<br>doz., 1 in., \$1.25; 5 in., \$1.55 |        |       |       |       |
| Inch ..... 2   | 2 1/4  | 2 1/2 | 2 3/4 | 3     |
| Hot House, doz. ....   | \$0.65 | .85   | 1.00  | 1.20  |
| Inch ..... 1 1/4   | 1 1/2  | 1 3/4 | 2     | 2 1/4 |
| Screw, doz. ....   | \$0.16 | .19   | .23   | .30   |
| Inch ..... 1 1/4   | 1 1/2  | 1 3/4 | 2     | 2 1/4 |
| Side, doz. ....  | \$0.25 | .40   | .55   | .80   |
| Inch ..... 1 1/4   | 1 1/2  | 1 3/4 | 2     | 2 1/4 |

**Sash Pulleys—**

Common Frame; Square or  
 Round End, per doz, 1 1/4 and  
 2 in. .... 17¢ 20¢  
 Auger Mortise, no Face Plate,  
 per doz, 1 1/4 and 2 in. .... 20¢ 21¢  
 Acme, No. 35, 1 1/4 in., 1 1/2 in., 2 in., 2 1/2 in.,  
 3 in., 3 1/2 in., 4 in., 4 1/2 in., 5 in., 5 1/2 in.,  
 6 in., 6 1/2 in., 7 in., 7 1/2 in., 8 in., 8 1/2 in.,  
 9 in., 9 1/2 in., 10 in., 10 1/2 in., 11 in., 11 1/2 in.,  
 12 in., 12 1/2 in., 13 in., 13 1/2 in., 14 in., 14 1/2 in.,  
 15 in., 15 1/2 in., 16 in., 16 1/2 in., 17 in., 17 1/2 in.,  
 18 in., 18 1/2 in., 19 in., 19 1/2 in., 20 in., 20 1/2 in.,  
 21 in., 21 1/2 in., 22 in., 22 1/2 in., 23 in., 23 1/2 in.,  
 24 in., 24 1/2 in., 25 in., 25 1/2 in., 26 in., 26 1/2 in.,  
 27 in., 27 1/2 in., 28 in., 28 1/2 in., 29 in., 29 1/2 in.,  
 30 in., 30 1/2 in., 31 in., 31 1/2 in., 32 in., 32 1/2 in.,  
 33 in., 33 1/2 in., 34 in., 34 1/2 in., 35 in., 35 1/2 in.,  
 36 in., 36 1/2 in., 37 in., 37 1/2 in., 38 in., 38 1/2 in.,  
 39 in., 39 1/2 in., 40 in., 40 1/2 in., 41 in., 41 1/2 in.,  
 42 in., 42 1/2 in., 43 in., 43 1/2 in., 44 in., 44 1/2 in.,  
 45 in., 45 1/2 in., 46 in., 46 1/2 in., 47 in., 47 1/2 in.,  
 48 in., 48 1/2 in., 49 in., 49 1/2 in., 50 in., 50 1/2 in.,  
 51 in., 51 1/2 in., 52 in., 52 1/2 in., 53 in., 53 1/2 in.,  
 54 in., 54 1/2 in., 55 in., 55 1/2 in., 56 in., 56 1/2 in.,  
 57 in., 57 1/2 in., 58 in., 58 1/2 in., 59 in., 59 1/2 in.,  
 60 in., 60 1/2 in., 61 in., 61 1/2 in., 62 in., 62 1/2 in.,  
 63 in., 63 1/2 in., 64 in., 64 1/2 in., 65 in., 65 1/2 in.,  
 66 in., 66 1/2 in., 67 in., 67 1/2 in., 68 in., 68 1/2 in.,  
 69 in., 69 1/2 in., 70 in., 70 1/2 in., 71 in., 71 1/2 in.,  
 72 in., 72 1/2 in., 73 in., 73 1/2 in., 74 in., 74 1/2 in.,  
 75 in., 75 1/2 in., 76 in., 76 1/2 in., 77 in., 77 1/2 in.,  
 78 in., 78 1/2 in., 79 in., 79 1/2 in., 80 in., 80 1/2 in.,  
 81 in., 81 1/2 in., 82 in., 82 1/2 in., 83 in., 83 1/2 in.,  
 84 in., 84 1/2 in., 85 in., 85 1/2 in., 86 in., 86 1/2 in.,  
 87 in., 87 1/2 in., 88 in., 88 1/2 in., 89 in., 89 1/2 in.,  
 90 in., 90 1/2 in., 91 in., 91 1/2 in., 92 in., 92 1/2 in.,  
 93 in., 93 1/2 in., 94 in., 94 1/2 in., 95 in., 95 1/2 in.,  
 96 in., 96 1/2 in., 97 in., 97 1/2 in., 98 in., 98 1/2 in.,  
 99 in., 99 1/2 in., 100 in., 100 1/2 in., 101 in., 101 1/2 in.,  
 102 in., 102 1/2 in., 103 in., 103 1/2 in., 104 in., 104 1/2 in.,  
 105 in., 105 1/2 in., 106 in., 106 1/2 in., 107 in., 107 1/2 in.,  
 108 in., 108 1/2 in., 109 in., 109 1/2 in., 110 in., 110 1/2 in.,  
 111 in., 111 1/2 in., 112 in., 112 1/2 in., 113 in., 113 1/2 in.,  
 114 in., 114 1/2 in., 115 in., 115 1/2 in., 116 in., 116 1/2 in.,  
 117 in., 117 1/2 in., 118 in., 118 1/2 in., 119 in., 119 1/2 in.,  
 120 in., 120 1/2 in., 121 in., 121 1/2 in., 122 in., 122 1/2 in.,  
 123 in., 123 1/2 in., 124 in., 124 1/2 in., 125 in., 125 1/2 in.,  
 126 in., 126 1/2 in., 127 in., 127 1/2 in., 128 in., 128 1/2 in.,  
 129 in., 129 1/2 in., 130 in., 130 1/2 in., 131 in., 131 1/2 in.,  
 132 in., 132 1/2 in., 133 in., 133 1/2 in., 134 in., 134 1/2 in.,  
 135 in., 135 1/2 in., 136 in., 136 1/2 in., 137 in., 137 1/2 in.,  
 138 in., 138 1/2 in., 139 in., 139 1/2 in., 140 in., 140 1/2 in.,  
 141 in., 141 1/2 in., 142 in., 142 1/2 in., 143 in., 143 1/2 in.,  
 144 in., 144 1/2 in., 145 in., 145 1/2 in., 146 in., 146 1/2 in.,  
 147 in., 147 1/2 in., 148 in., 148 1/2 in., 149 in., 149 1/2 in.,  
 150 in., 150 1/2 in., 151 in., 151 1/2 in., 152 in., 152 1/2 in.,  
 153 in., 153 1/2 in., 154 in., 154 1/2 in., 155 in., 155 1/2 in.,  
 156 in., 156 1/2 in., 157 in., 157 1/2 in., 158 in., 158 1/2 in.,  
 159 in., 159 1/2 in., 160 in., 160 1/2 in., 161 in., 161 1/2 in.,  
 162 in., 162 1/2 in., 163 in., 163 1/2 in., 164 in., 164 1/2 in.,  
 165 in., 165 1/2 in., 166 in., 166 1/2 in., 167 in., 167 1/2 in.,  
 168 in., 168 1/2 in., 169 in., 169 1/2 in., 170 in., 170 1/2 in.,  
 171 in., 171 1/2 in., 172 in., 172 1/2 in., 173 in., 173 1/2 in.,  
 174 in., 174 1/2 in., 175 in., 175 1/2 in., 176 in., 176 1/2 in.,  
 177 in., 177 1/2 in., 178 in., 178 1/2 in., 179 in., 179 1/2 in.,  
 180 in., 180 1/2 in., 181 in., 181 1/2 in., 182 in., 182 1/2 in.,  
 183 in., 183 1/2 in., 184 in., 184 1/2 in., 185 in., 185 1/2 in.,  
 186 in., 186 1/2 in., 187 in., 187 1/2 in., 188 in., 188 1/2 in.,  
 189 in., 189 1/2 in., 190 in., 190 1/2 in., 191 in., 191 1/2 in.,  
 192 in., 192 1/2 in., 193 in., 193 1/2 in., 194 in., 194 1/2 in.,  
 195 in., 195 1/2 in., 196 in., 196 1/2 in., 197 in., 197 1/2 in.,  
 198 in., 198 1/2 in., 199 in., 199 1/2 in., 200 in., 200 1/2 in.,  
 201 in., 201 1/2 in., 202 in., 202 1/2 in., 203 in., 203 1/2 in.,  
 204 in., 204 1/2 in., 205 in., 205 1/2 in., 206 in., 206 1/2 in.,  
 207 in., 207 1/2 in., 208 in., 208 1/2 in., 209 in., 209 1/2 in.,  
 210 in., 210 1/2 in., 211 in., 211 1/2 in., 212 in., 212 1/2 in.,  
 213 in., 213 1/2 in., 214 in., 214 1/2 in., 215 in., 215 1/2 in.,  
 216 in., 216 1/2 in., 217 in., 217 1/2 in., 218 in., 218 1/2 in.,  
 219 in., 219 1/2 in., 220 in., 220 1/2 in., 221 in., 221 1/2 in.,  
 222 in., 222 1/2 in., 223 in., 223 1/2 in., 224 in., 224 1/2 in.,  
 225 in., 225 1/2 in., 226 in., 226 1/2 in., 227 in., 227 1/2 in.,  
 228 in., 228 1/2 in., 229 in., 229 1/2 in., 230 in., 230 1/2 in.,  
 231 in., 231 1/2 in., 232 in., 232 1/2 in., 233 in., 233 1/2 in.,  
 234 in., 234 1/2 in., 235 in., 235 1/2 in., 236 in., 236 1/2 in.,  
 237 in., 237 1/2 in., 238 in., 238 1/2 in., 239 in., 239 1/2 in.,  
 240 in., 240 1/2 in., 241 in., 241 1/2 in., 242 in., 242 1/2 in.,  
 243 in., 243 1/2 in., 244 in., 244 1/2 in., 245 in., 245 1/2 in.,  
 246 in., 246 1/2 in., 247 in., 247 1/2 in., 248 in., 248 1/2 in.,  
 249 in., 249 1/2 in., 250 in., 250 1/2 in., 251 in., 251 1/2 in.,  
 252 in., 252 1/2 in., 253 in., 253 1/2 in., 254 in., 254 1/2 in.,  
 255 in., 255 1/2 in., 256 in., 256 1/2 in., 257 in., 257 1/2 in.,  
 258 in., 258 1/2 in., 259 in., 259 1/2 in., 260 in., 260 1/2 in.,  
 261 in., 261 1/2 in., 262 in., 262 1/2 in., 263 in., 263 1/2 in.,  
 264 in., 264 1/2 in., 265 in., 265 1/2 in., 266 in., 266 1/2 in.,  
 267 in., 267 1/2 in., 268 in., 268 1/2 in., 269 in., 269 1/2 in.,  
 270 in., 270 1/2 in., 271 in., 271 1/2 in., 272 in., 272 1/2 in.,  
 273 in., 273 1/2 in., 274 in., 274 1/2 in., 275 in., 275 1/2 in.,  
 276 in., 276 1/2 in., 277 in., 277 1/2 in., 278 in., 278 1/2 in.,  
 279 in., 279 1/2 in., 280 in., 280 1/2 in., 281 in., 281 1/2 in.,  
 282 in., 282 1/2 in., 283 in., 283 1/2 in., 284 in., 284 1/2 in.,  
 285 in., 285 1/2 in., 286 in., 286 1/2 in., 287 in., 287 1/2 in.,  
 288 in., 288 1/2 in., 289 in., 289 1/2 in., 290 in., 290 1/2 in.,  
 291 in., 291 1/2 in., 292 in., 292 1/2 in., 293 in., 293 1/2 in.,  
 294 in., 294 1/2 in., 295 in., 295 1/2 in., 296 in., 296 1/2 in.,  
 297 in., 297 1/2 in., 298 in., 298 1/2 in., 299 in., 299 1/2 in.,  
 300 in., 300 1/2 in., 301 in., 301 1/2 in., 302 in., 302 1/2 in.,  
 303 in., 303 1/2 in., 304 in., 304 1/2 in., 305 in., 305 1/2 in.,  
 306 in., 306 1/2 in., 307 in., 307 1/2 in., 308 in., 308 1/2 in.,  
 309 in., 309 1/2 in., 310 in., 310 1/2 in., 311 in., 311 1/2 in.,  
 312 in., 312 1/2 in., 313 in., 313 1/2 in., 314 in., 314 1/2 in.,  
 315 in., 315 1/2 in., 316 in., 316 1/2 in., 317 in., 317 1/2 in.,  
 318 in., 318 1/2 in., 319 in., 319 1/2 in., 320 in., 320 1/2 in.,  
 321 in., 321 1/2 in., 322 in., 322 1/2 in., 323 in., 323 1/2 in.,  
 324 in., 324 1/2 in., 325 in., 325 1/2 in., 326 in., 326 1/2 in.,  
 327 in., 327 1/2 in., 328 in., 328 1/2 in., 329 in., 329 1/2 in.,  
 330 in., 330 1/2 in., 331 in., 331 1/2 in., 332 in., 332 1/2 in.,  
 333 in., 333 1/2 in., 334 in., 334 1/2 in., 335 in., 335 1/2 in.,  
 336 in., 336 1/2 in., 337 in., 337 1/2 in., 338 in., 338 1/2 in.,  
 339 in., 339 1/2 in., 340 in., 340 1/2 in., 341 in., 341 1/2 in.,  
 342 in., 342 1/2 in., 343 in., 343 1/2 in., 344 in., 344 1/2 in.,  
 345 in., 345 1/2 in., 346 in., 346 1/2 in., 347 in., 347 1/2 in.,  
 348 in., 348 1/2 in., 349 in., 349 1/2 in., 350 in., 350 1/2 in.,  
 351 in., 351 1/2 in., 352 in., 352 1/2 in., 353 in., 353 1/2 in.,

**Saws—**

|                       |           |
|-----------------------|-----------|
| Atkins':              | 45%       |
| Circular              | 50@50&10% |
| Band                  | 50@50&10% |
| Butcher Saws          | 35%       |
| Cross Cuts            | 35%       |
| One-Man Cross Cut     | 40%       |
| Narrow Cross Cut      | 50%       |
| Hand, Rip and Panel   | 35&5%     |
| Miter Box and Compass | 40%       |
| Mulay, Mill and Drag  | 45%       |
| Wood Saws             | 40&10%    |

Chapin-Stephens Co.:

Turning Saws and Frames, 30@30&amp;10%

Diamond Head &amp; Stamping Works:

Sterling Kitchen Saws, 30@10&amp;10%

Diston's:

Circular, Solid and Inset Tooth, 50%

Band, 2 to 18 in. wide, 60%

Band, 1/4 to 1 1/2, 60%

Crosscuts, 45%

Narrow Crosscuts, 50%

Mulay, Mill and Drag, 50%

Framed Woodsaws, 25%

Woodsaw Blades, 15%

Woodsaw Rods, Tinned, 15%

Hand Saws, Nos. 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50, 52, 54, 56, 58, 60, 62, 64, 66, 68, 70, 72, 74, 76, 78, 80, 82, 84, 86, 88, 90, 92, 94, 96, 98, 100, 102, 104, 106, 108, 110, 112, 114, 116, 118, 120, 122, 124, 126, 128, 130, 132, 134, 136, 138, 140, 142, 144, 146, 148, 150, 152, 154, 156, 158, 160, 162, 164, 166, 168, 170, 172, 174, 176, 178, 180, 182, 184, 186, 188, 190, 192, 194, 196, 198, 200, 202, 204, 206, 208, 210, 212, 214, 216, 218, 220, 222, 224, 226, 228, 230, 232, 234, 236, 238, 240, 242, 244, 246, 248, 250, 252, 254, 256, 258, 260, 262, 264, 266, 268, 270, 272, 274, 276, 278, 280, 282, 284, 286, 288, 290, 292, 294, 296, 298, 300, 302, 304, 306, 308, 310, 312, 314, 316, 318, 320, 322, 324, 326, 328, 330, 332, 334, 336, 338, 340, 342, 344, 346, 348, 350, 352, 354, 356, 358, 360, 362, 364, 366, 368, 370, 372, 374, 376, 378, 380, 382, 384, 386, 388, 390, 392, 394, 396, 398, 400, 402, 404, 406, 408, 410, 412, 414, 416, 418, 420, 422, 424, 426, 428, 430, 432, 434, 436, 438, 440, 442, 444, 446, 448, 450, 452, 454, 456, 458, 460, 462, 464, 466, 468, 470, 472, 474, 476, 478, 480, 482, 484, 486, 488, 490, 492, 494, 496, 498, 500, 502, 504, 506, 508, 510, 512, 514, 516, 518, 520, 522, 524, 526, 528, 530, 532, 534, 536, 538, 540, 542, 544, 546, 548, 550, 552, 554, 556, 558, 560, 562, 564, 566, 568, 570, 572, 574, 576, 578, 580, 582, 584, 586, 588, 590, 592, 594, 596, 598, 600, 602, 604, 606, 608, 610, 612, 614, 616, 618, 620, 622, 624, 626, 628, 630, 632, 634, 636, 638, 640, 642, 644, 646, 648, 650, 652, 654, 656, 658, 660, 662, 664, 666, 668, 670, 672, 674, 676, 678, 680, 682, 684, 686, 688, 690, 692, 694, 696, 698, 700, 702, 704, 706, 708, 710, 712, 714, 716, 718, 720, 722, 724, 726, 728, 730, 732, 734, 736, 738, 740, 742, 744, 746, 748, 750, 752, 754, 756, 758, 760, 762, 764, 766, 768, 770, 772, 774, 776, 778, 780, 782, 784, 786, 788, 790, 792, 794, 796, 798, 800, 802, 804, 806, 808, 810, 812, 814, 816, 818, 820, 822, 824, 826, 828, 830, 832, 834, 836, 838, 840, 842, 844, 846, 848, 850, 852, 854, 856, 858, 860, 862, 864, 866, 868, 870, 872, 874, 876, 878, 880, 882, 884, 886, 888, 890, 892, 894, 896, 898, 900, 902, 904, 906, 908, 910, 912, 914, 916, 918, 920, 922, 924, 926, 928, 930, 932, 934, 936, 938, 940, 942, 944, 946, 948, 950, 952, 954, 956, 958, 960, 962, 964, 966, 968, 970, 972, 974, 976, 978, 980, 982, 984, 986, 988, 990, 992, 994, 996, 998, 1000

C. E. Jennings &amp; Co.'s:

Back Saws, 16%

Butcher Saws, 25&amp;7%

Compass and Key Hole Saws, 33&amp;7%

Framed Wood Saws, 25&amp;7%

Hand Saws, 12%

Wood Saw Blades, 33&amp;7%

Millers Falls:

Butcher Saws, 15&amp;10%

Star Saw Blades, 15&amp;10%

Massachusetts Saw Works:

Victor Kitchen Saws, 40&amp;10&amp;50%

Butcher Saws, 35&amp;40%

Peace &amp; Richardson's Hand Saws, 30%

Simonds':

Circular Saws, 45%

Crescent Ground Cross Cut Saws, 30%

One-Man Cross Cuts, 40&amp;10%

Gang Mill, Mulay and Drag Saws, 45%

Band Saws, 25&amp;7%

Back Saws, 25&amp;7%

Butcher Saws, 35&amp;40%

Hand Saws, 25&amp;7%

Hand Saws, Bay State Brand, 45%

Compass, Key Hole, &amp;c., 25&amp;7%

Wood Saws, 40&amp;7%

Wheeler, Madden &amp; Clemson Mfg. Co.'s Cross Cut Saws, 50%

**Hack Saw Blades and Frames—**

Atkins' Hack Saw Blades A &amp; A, 25%

Diston's:

Concave Blades, 25%

Keystone Blades, 35%

Hack Saw Frames, 30%

Simonds' File Co., 35%

C. E. Jennings &amp; Co.'s:

Hack Saw Frames, Nos. 175, 180, 40&amp;7%

Hack Saws, Nos. 175, 180, complete, 40&amp;7%

Goodell's Hack Saw Blades, 10&amp;10%

Griffin's Hack Saw Frames, 35&amp;40%

Griffin's Hack Saw Blades, 35&amp;40%

Star Hack Saws and Blades, 15&amp;10%

Sterling Hack Saw Blades, 30&amp;10&amp;5%

Sterling Hack Saw Frames, 30&amp;10&amp;10%

Sterling Power Hack Saw Machines, each, No. 1, \$25.00; No. 2, \$30.00; 10%

Victor Hack Saw Blades, 40%

Victor Hack Saw Frames, 40%

**Scroll—**

Barnes, No. 7, \$15.00; 25%

Barnes' Scroll Saw Blades, 40%

Barnes' Velociped Power Scroll Saw, without boring attachment, \$18.00; with boring attachment, \$20.00; 20%

Lester, complete, \$10.00; 15&amp;10%

Rogers, complete, \$3.50 and \$4.00; 15&amp;10%

**Scales—**

Family, Turnbull's, 50@50&amp;10%

Counter:

Hatch, Platform, 1/2 oz. to 4 lbs., 25%

Tico, Platforms, 1/2 oz. to 8 lbs., 25%

Union Platform, Plain, \$1.70@1.90

Union Platform, Std., \$1.85@2.15

Chattillon's:

Eureka, 25%

Favorite, 40%

Crocers' Trip Scales, 50%

The Standard Portables, 40%

The Standard R. R. and 50&amp;10%

**Scrapers—**

Box, 1 Handle, doz., \$2.00@2.25

Box, 2 Handle, doz., \$2.50@2.75

Ship, 1 Light, \$2.00; Heavy, \$4.50

Chapin-Stephens Co., Box, 30@30&amp;10%

Richards Mfg. Co., Foot, 60%

**Screws—Bench and Hand**

Bench, Iron, doz., 1 in., \$2.50@2.75

2 1/2; 1 1/2, \$3.00@3.25; 1 1/4, \$3.50@3.75

Bench, Wood, 25@25&amp;10%

Hand, Wood, 70@10@70&amp;10&amp;10%

Chapin-Stephens Co., Hand, 70@70&amp;10&amp;25%

**Coach, Lag and Hand Rail—**

Lag, Cone Point, list Oct. 1, 75&amp;15%

Coach, Gimlet Point, list Oct. 1, 75&amp;10%

Hand Rail, list Jan. 1, 70&amp;10@75%

**Jack Screws—**

Standard List, 70&amp;10@75%

Millers Falls, 50&amp;10&amp;10%

Sweet Iron Works, 70@75%

**Machine—**

List Jan. 1, '98:

Flat or Round Head, Iron, Brass or Bronze, 50@50&amp;10%

Fillister Head, Iron, Brass or Bronze, 40@40&amp;10%

**Set and Cap—**

|   |
|---|
| Set (Iron), 75&10&7 1/2%                |
| Set (Steel), net advance over Iron, 25% |
| Sq. Hd. Cap, 70&10&7 1/2%               |
| Hex. Hd. Cap, 70&10&7 1/2%              |
| Rd. Hd. Cap, 60&7 1/2%                  |
| Fillister Hd. Cap, 60&7 1/2%            |

**Wood—**

List July 23, 1908.

|                                |
|--------------------------------|
| Flat Head, Iron, 87 1/2@85@    |
| Round Head, Iron, 85&50@       |
| Flat Head, Brass, 80&50@       |
| Round Head, Brass, 77 1/2@50@  |
| Flat Head, Bronze, 75&50@      |
| Round Head, Bronze, 72 1/2@50@ |
| Drive Screws, 87 1/2@50@       |

**Scroll Saws—**

See Saws, Scroll.

**Scythes—**

Per doz.

Grass, No. 1, Plain, \$6.25@6.75

Clipper, Bronzed Webb, \$6.50@7.00

No. 3 Clipper, Pol'd Webb, \$6.75@7.25

No. 6 Clipper and Solid Steel, \$7.00@7.50

Bush, Weed and Bramble, No. 2, \$6.50@7.00

Grain, No. 1, \$9.25@9.75

Bronzed Webb, No. 1, \$9.50@9.00

Nos. 3 and 4 Clipper, Grain, \$9.75@9.25

Solid Steel, No. 6, \$9.25@9.75

**Seeders, Raisin—**

Enterprise, 25@30%

**Sets—Awl and Tool—**

Fray's Adj. Tool Handles, Nos. 1, \$12; 2, \$18; 3, \$12; 4, \$9; 5, \$7; 50%

Millers Falls Adj. Tool Handles, No. 1, \$12; No. 4, \$12; No. 5, \$18; 20&amp;10%

**Garden Tool Sets—**

Ft. Madison Three Plows, Hoe, Rake and Shovel, \$9 doz sets \$9.00

**Sets, Nail—**

Octagon, gro., \$3.50@3.75

Buck Bros., 27 1/2%

Cannon's Diamond Point, \$ gro, \$12; 40&amp;10%

Mayhew's, \$ gro, \$9.50

Snell's Corrugated, \$40&amp;10%

Snell's Knurled, Cup Pt., 40&amp;10%

Victor Knurled Cup Pt., \$ gro, \$7.50

**Rivet—**

Regular list, 75@75&amp;10%

**Saw—**

Atkins':

Criterion, 40%

Adjustable, 40%

Diston's Star, Monarch and Triumph, 30%

Morrill's No. 1, \$15.00

Nos. 3 and 4, Cross Cut, \$20.00

No. 5, Mill, \$30.00

No. 10, 11, 95, \$15.00

No. 1 Old Style, \$10.00

Special, \$16.25

Giant Royal Cross Cut, \$ doz, \$8.00

Royal, Hand, \$ doz, \$4.50

Taintor Positive, \$ doz, \$4.75

**Shaving—**

Fox Shaving Sets, No. 30, \$ doz, net, \$24.00

Smith &amp; Hemenway Co.'s, 75%

**Sharpeners, Knife—**

Pike Mfg. Co.:

Fast Cut Pocket Knife Hones, \$ doz, \$1.50

Mounted Kitchen Sand Stone, \$ doz, \$1.50

Natural Grit Carving Knife Hones, \$ doz, \$1.50

Quick Cut Emery Carving Knife Hones, \$ doz, \$1.50

Quick Edge Pocket Knife Hones, \$ doz, \$2.00

**Skate—**

Smith &amp; Hemenway Co., Eureka, 50%

**Shaves, Spoke—**

Iron, doz., \$1.10@1.25

Wood, doz., \$1.75@2.25

Bailey's (Stanley R. &amp; L. Co.), 45%

Chapin-Stephens Co., 30@30&amp;10%

Goodell's, \$ doz, \$9.00; 15&amp;10%

**Shears—**

Cast Iron, 7 8 9 in., 50%

Beat, \$16.00 18.00 20.00 gro., 50%

Good, \$13.00 15.00 17.00 gro., 50%

Cheap, \$5.00 6.00 7.00 gro., 50%

Straight Trimmers, &amp;c., 50%

Best quality Jap., 70@70&amp;10%

Best quality, Nickel, 60@60&amp;10%

Tailors' Shears, 40@40&amp;10%

Acme Cast Shears, 40@40&amp;10%

Heinrich's Tailor's Shears, 10%

Wilkinson Shear &amp; Cutlery Co., 30&amp;10&amp;5%

Sheep, 1900 list, 30&amp;10&amp;5%

Grass, 50&amp;10%

Horse or Mule, 50&amp;10%

**Tinners' Snips—**

Steel Blades, 20&amp;5@20&amp;10%

Steel Laid Blades, 40&amp;10&amp;50%

Forged Handles, Steel Blades, Berlin, 40%

Heinrich's Snips, 40%

Jennings &amp; Griffin Mfg. Co.'s 6 1/2 to 10 in., 33&amp;7 1/2%

P. S. &amp; W. Forged Handles, 25%

W. R. W., 40&amp;10%

**Pruning Shears—**

|  |
|--|
| Cronk's Hand Shears, 33 1/2%                                 |
| Cronk's Wood Handle Shears, 33 1/2%                          |
| Diston's Combined Pruning Hook and Saw, \$ doz, \$18.00; 25% |
| Diston's Pruning Hook only, \$ doz, \$12.00; 25%             |
| John T. Henry Mfg. Co.: Pruning Shears, all grades, 40%      |
| P. S. & W. Co., 10&10%                                       |
| Columbian Cutlery Co.: Hedge, Wilcut Brand, 60&10%           |
| Lawn and Border, Wilcut Brand, 60&10%                        |

**Sheaves—Sliding Door—**

|                   |
|-------------------|
| Reading list, 40% |
| R. & E. list, 15% |

**Sliding Shutter—**

|                   |
|-------------------|
| Reading list, 40% |
| R. & E. list, 10% |

**Shells—Shells, Empty—**

|                                 |
|---------------------------------|
| Brass Shells, Empty:            |
| Climax, 10 and 12 gauge, 65&10% |



## Scythe Stones—

|                                     |          |
|-------------------------------------|----------|
| Pike Mfg. Co., 1901 list:           |          |
| Black Diamond S. S. 8. 3/4 gro.     | \$12.00  |
| Lamont S. S. 8. 3/4 gro.            | \$11.00  |
| White Mountain S. S. 8. 3/4 gro.    | \$9.00   |
| Green Mountain S. S. 8. 3/4 gro.    | \$6.00   |
| Extra Indian Pond S. S. 8. 3/4 gro. | \$7.50   |
| No. 1 Indian Pond S. S. 8. 3/4 gro. | \$7.00   |
| No. 2 Indian Pond S. S. 8. 3/4 gro. | \$4.50   |
| Leader Red End S. S. 8. 3/4 gro.    | \$4.50   |
| Quick Cut Emery 8. 3/4 gro.         | \$10.00  |
| Pure Corundum 8. 3/4 gro.           | \$18.00  |
| Crescent 8. 3/4 gro.                | \$7.00   |
| Emery Scythe Blades, 2 Coat, 8 1/2  |          |
| Emery Scythe Blades, 3 Coat, 10     |          |
| Emery Scythe Blades, 4 Coat, 12 1/2 |          |
| Balance of 1904 list 3 3/4 %        |          |
| Electro (Artificial), 8 1/2 gro.    | 33 1/2 % |
| \$12.00                             |          |
| Lightning (Artificial), 8 1/2 gro.  | 33 1/2 % |
| \$18.00                             |          |

## Stoppers, Bottle—

Victor Bottle Stoppers..... 7/8 gro. \$9.00

## Stops— Bench—

|  |        |
|--|--------|
| Millers Falls.....                       | 15¢10% |
| Morrill's, 3/4 doz., No. 1, \$10.00..... | 50%    |
| Morrill's, No. 2, \$12.50.....           | 50%    |

## Door—

Chapin-Stephens Co..... 50¢50¢10%

## Plane—

Chapin-Stephens Co..... 20%

## Straps— Box—

Cary's Universal, case lots..... 20¢10¢10%

## Stretchers, Carpet—

Cast Iron, Steel Points, doz. 60¢60¢10%

Socket ..... doz. \$1.00

Excelsior Stretcher and Tack Hammer Combined, 3/4 doz. \$6.00..... 20%

## Stuffers, Sausage—

Enterprise Mfg. Co..... 25¢25¢7 1/2 %

National Specialty Co., list Jan. 1, 1902..... 30¢5%

P. S. &amp; W. Co..... 40¢10¢5%

## Sweepers, Carpet—

Bissell Carpet Sweeper Co.: 3/4 doz.

Superba, Crotch Mahogany..... \$36.00

Triumph, Fancy Veneer..... \$33.00

Parlor Queen, Fig. Rosewood..... \$30.00

Elite, Hungarian Ash..... \$29.00

Am. Queen, Fig. Mahogany..... \$27.00

Ideal, Bird's-Eye Maple..... \$25.00

Grand Rapids, Nickel, \$24.00

Japan..... \$22.00

Standard, Nickel, \$22.00; Japan, \$20.00

Crown Jewel, Nickel, \$21.00; Jap. \$19.00

Crystal, Glass Top..... \$36.00

Grand, 17 in. wide..... \$36.00

Club, 24 in. wide..... \$54.00

Hall, 28 in. wide..... \$60.00

NOTE—Rebates: 50¢ per dozen on three dozen lots; \$1 per dozen on five dozen lots; \$2 per dozen on ten dozen lots; \$2.50 per dozen on twenty-five dozen lots.

## Tacks, Finishing Nails, &amp;c.

American Carpet Tacks..... 90¢25%

American Cut Tacks..... 90¢25%

Sweeds' Cut Tacks..... 90¢25%

Sweeds' Upholsterers'..... 90¢35%

Gimp Tacks..... 90¢35%

Lace Tacks..... 90¢35%

Trimmers' Tacks..... 90¢25%

Looking Glass Tacks..... 65%

Bill Posters' and Railroad Tacks..... 90¢40%

Hungarian Nails..... 80¢10%

Finishing Nails..... 70%

Trunk and Clout Nails..... 80%

NOTE—The above prices are for Straight Weights.

## Miscellaneous—

Double Pointed Tacks..... 90¢4 or 5 tens

See also Nails, Wire.

## Tanks, Oil and Gasoline—

Wilson &amp; Friend Co.: Oil

Gal. Gasoline..... \$3.00

30..... \$2.75

60..... \$2.50

120..... \$2.00

## Tapes, Measuring—

American Asses' Skin..... 50¢— 2

Patent Leather..... 25¢30¢45%

Steel..... 33 1/2¢45%

Chesterman's..... 25¢25¢45%

Kenell &amp; Emer Co.: 40¢10¢50%

Favorite, Ass Skin..... 40¢10¢50%

Favorite, Duck and Leather..... 25¢25¢10%

Metallic and Steel, lower list, 30¢ 35¢; Pocket, 35¢35¢45%

Lufkin's: 40¢10¢50%

Asses' Skin..... 30¢30¢45%

Patent Bend, Leather..... 25¢25¢10%

Pocket..... 40¢40¢5%

Steel..... 33 1/2¢45%

Wiebusch &amp; Hilger: 25%

Chesterman's Metallic, No. 31L..... 25%

etc..... 35%

Chesterman's Steel, No. 1038L..... 35%

etc..... 35%

## Teeth, Harrow—

Steel Harrow Teeth, plain or headed, 3/4-inch and larger, per 100 lbs. \$2.75 to \$3.00

## Thermometers—

Tin Case..... 80¢10¢90¢10¢5%

## Ties, Bale—Steel Wire—

Single Loop..... 80¢10¢5%

Monitor, Cross Head, &amp;c. 70¢25%

## Tinners' Shears, &amp;c.—

See Shears, Tanners', &amp;c.

## Tinware—

Stamped, Japanned and Pieced, sold very generally at net prices.

## Tire Benders, Upsetters, &amp;c.

See Benders and Upsetters, Tire.

## Tools—Coopers'—

L. &amp; I. J. White..... 20¢20¢45%

## Haying—

Myers' Hay Tools..... 45%

## Miniature—

Smith &amp; Hemenway Co.'s, Davidson, 3/4 doz., Nickel Plated, \$1.50;

Gold Plated..... \$2.00

## Saw—

Atkins' Cross Cut Saw Tools..... 35¢45%

Simonds' Improved..... 33 1/2 %

Simonds' Crescent..... 33 1/2 %

## Ship—

L. &amp; I. J. White..... 20%

## Transom Lifters—

See Lifters, Transom.

## Traps—Fly—

Balloon, Globe or Acme, doz. \$1.15 to \$1.25; doz. \$1.10 to \$1.20

Harper, Champion or Paragon, doz. \$1.25 to \$1.40; gro. \$1.30 to \$1.50

## Game—

Imitation Onocida..... 70¢10%

Newhouse..... 40¢45¢2

Hawley &amp; Norton..... 65%

Victor..... 70¢45%

Onocida Community Jump..... 50%

## Mouse and Rat—

Mouse, Wood, Choker, doz. holes 12¢

Mouse, Round or Square Wire, doz. 85¢90¢

Marty French Rat and Mouse Traps (Genuine):

No. 1, Rat, 3/4 doz., \$13.25; case of 24..... \$11.50 doz.

No. 3, Rat, 3/4 doz., \$6.50; case of 24..... \$5.75 doz.

No. 3 1/2, Rat, 3/4 doz., \$5.25; case of 24..... \$4.70 doz.

No. 4, Mouse, 3/4 doz., \$3.85; case of 150..... \$3.00 doz.

No. 5, Mouse, 3/4 doz., \$3.00; case of 150..... \$2.25 doz.

## Trowels—

Disston Brick and Pointing..... 25%

Disston Plastering..... 20%

Disston "Standard Brand" and Garden Trowels..... 30%

Kohler's Steel Garden Trowels, 3/4 gro., 8 in., \$4.80; 6 in., \$4.30

Never-Break Steel Garden Trowels, 3/4 gro. \$6.00

Woodrough &amp; McFarlin, Plastering..... 25%

## Trucks, Warehouse, &amp;c.—

B. &amp; L. Block Co.: 50¢10%

New York Pattern..... 50¢10%

Western Pattern..... 60¢10%

Handy Trucks..... 3/4 doz. \$16.00

Grocery..... 3/4 doz. \$15.00

McKinney Trucks..... each, net \$10.00

Model Store Trucks..... 3/4 doz. \$18.50

## Tubs, Wash—

M'Porr's list, price per gross.

No. 0 1 2 3

Galvanized. \$67 \$79 \$89 \$99 10%

## Twine, Miscellaneous—

Flax Twine:

No. 9, 1/4 and 1/2-lb. Balls, 23¢25¢

No. 12, 1/4 and 1/2-lb. Balls, 21¢22¢

No. 18, 1/4 and 1/2-lb. Balls, 18¢20¢

No. 24, 1/4 and 1/2-lb. Balls, 17¢19¢

No. 36, 1/4 and 1/2-lb. Balls, 16¢18¢

Chalk Line, Cotton 3/4-lb. Balls..... 26¢31¢

Cotton Mops, 6, 9, 12 and 15 lb. to doz..... 11¢19¢

Cotton Wrapping, 5 Balls to lb., according to quality..... 15¢12¢

American 2-Ply Hemp, 1/4 and 1/2-lb. Balls..... 14¢15¢

American 3-Ply Hemp, 1-lb. Balls..... 15¢16¢

India 2-Ply Hemp, 1/4 and 1/2-lb. Balls (Spring Twine)..... 10¢11¢

India 3-Ply Hemp, 1-lb. Balls..... 10¢11¢

India 3-Ply Hemp, 1 1/4-lb. Balls..... 10¢11¢

3, 3 1/2 and 5-Ply Jute, 1-lb. Balls..... 13¢14¢

Mason Line, Linen, 1/4-lb. Balls, No. 264 Mattress, 1/4 and 1/2-lb. Balls, according to quality..... 30¢60¢

Wool, 3 to 6 ply..... B 9¢; A 10¢

## Vises—

Solid Box..... 50¢50¢10%

## Parallel—

Athol Machine Co.: 40%

Simpson's Adjustable..... 40%

Standard..... 40%

Amateur..... 40%

Columbian Hdw. Co..... 40%

Fisher &amp; Norris Double Screw, net, each, Nos. 2, \$10.50; 3, \$16.00; 4, \$20.50; 5, \$27.00

Fulton Mach. &amp; Vise Co.: 25%

Reed, Swivel..... 25%

Star, Solid Jaw..... 40%

Hollands: 40%

Machinists'..... 40%

Keyhole..... 65¢40%

Lewis Tool Co.: 30%

Adjustable Jaw..... 50%

Monarch, 50%; Solid Jaw..... 50%

Massey Vise Co.: 40%

Climber..... 40%

Perfect, 15%; Lightning Grip..... 15%

Merrill..... 20%

Millers Falls Oval Slide Pattern, 60¢10%

Parker's: 20%

Victor, 20¢25%; Regulars..... 20¢25%

Combination Pipe..... 55¢60%

Preston..... 20¢25%

Rock Island..... 33 1/2 %

Snedikers A. L..... 33 1/2 %

Stephens..... 33 1/2 %

## Saw Filers—

Dieston's D 3 Clamp and Guide, 3/4 doz., \$24.00, 30%; Clamps..... 30%

Perfection Saw Clamps, 3/4 doz..... \$4.50

Reading..... 60%

## Wood Workers—

Fulton Mach. &amp; Vise Co.: 25%

Reed..... 25%

Star..... 40%

Lightning Grip, 15%; Perfect..... 15%

Wyman &amp; Gordon's Quick Action, 6 in., \$6.00; 9 in., \$7.00; 14 in., \$8.00

## Miscellaneous—

Holland's Combination Pipe, 60¢60¢5%

Massey's Quick Action Pipe..... 40%

Parker's Combination Pipe: 25%

87 Series, 80%; 187 Series, 80¢5%; No. 870 40%

Rock Island Pipe..... 25%

## Wads—Price per M.

B. E., 11 up..... 60¢

B. E., 9 and 10..... 70¢

B. E., 8..... 80¢

B. E., 7..... 80¢

P. E., 11 up..... \$1.00

P. E., 9 and 10..... 1.25

P. E., 8..... 1.50

P. E., 7..... 1.50

Ely's B. E., 11 and larger, \$1.70 to \$1.75

Ely's P. E., 12 to 20..... \$3.00 to \$3.25

## Ware, Hollow—

Cast Iron, Hollow—

Stove Hollow Ware:

Enamelled..... 45¢10%

Ground..... 50¢5%

Plain or Unground..... 60%

Country Hollow Ware, per 100 lbs..... \$3.00

White Enamelled Ware:

Mortar Kettles..... 65¢10%

Covered Wares:

Tinned and Turned..... 35¢10%

Enamelled..... 45¢10%

See also Pots, Glue.

## Enamelled—

Agate Nickel Steel Ware..... 33 1/2 %

Iron Clad Ware..... 70%

Lava and Volcanic, Enamelled..... 40¢10%

## Tea Kettles—

Galvanized Tea Kettles:

Inch..... 6 7 8 9

Each..... 45¢ 50¢ 55¢ 65¢

## Steel Hollow Ware—

Avery Spiders and Griddles..... 65¢65¢5%

Avery Kettles..... 60%

Porcelain..... 50¢50¢10%

Never Break Spiders and Griddles..... 65¢5%

Never Break Kettles..... 65¢5%

Solid Steel Spiders and Griddles..... 65¢5%

Solid Steel Kettles..... 60%

## Warmers, Foot—

Pike Mfg. Co., Soapstone..... 40¢40¢10%

## Washboards—

Solid Zinc: 3/4 doz.

Crescent, family size, bent frame..... \$4.05

Red Star, family size, stationary protector..... \$4.05

Double Zinc Surface:

Saginaw Globe, family size, station- ary protector..... \$3.55

Cable Cross, family size, station- ary protector..... \$3.60

Single Zinc Surface:

Nalad, family size, open back, perforated..... \$3.00

Single Saginaw Globe..... \$2.85

Brass King: Single Surface, open back..... \$1.05

Nickel Plate Surface:

No. 1001 Nickel Plate, Single Sur- face..... \$3.60

Glass Surface:

Glass King, Single Surface, open back..... \$3.95

Enamel Surface:

Enamel King, Single Surface, venti- lated back..... \$3.95

